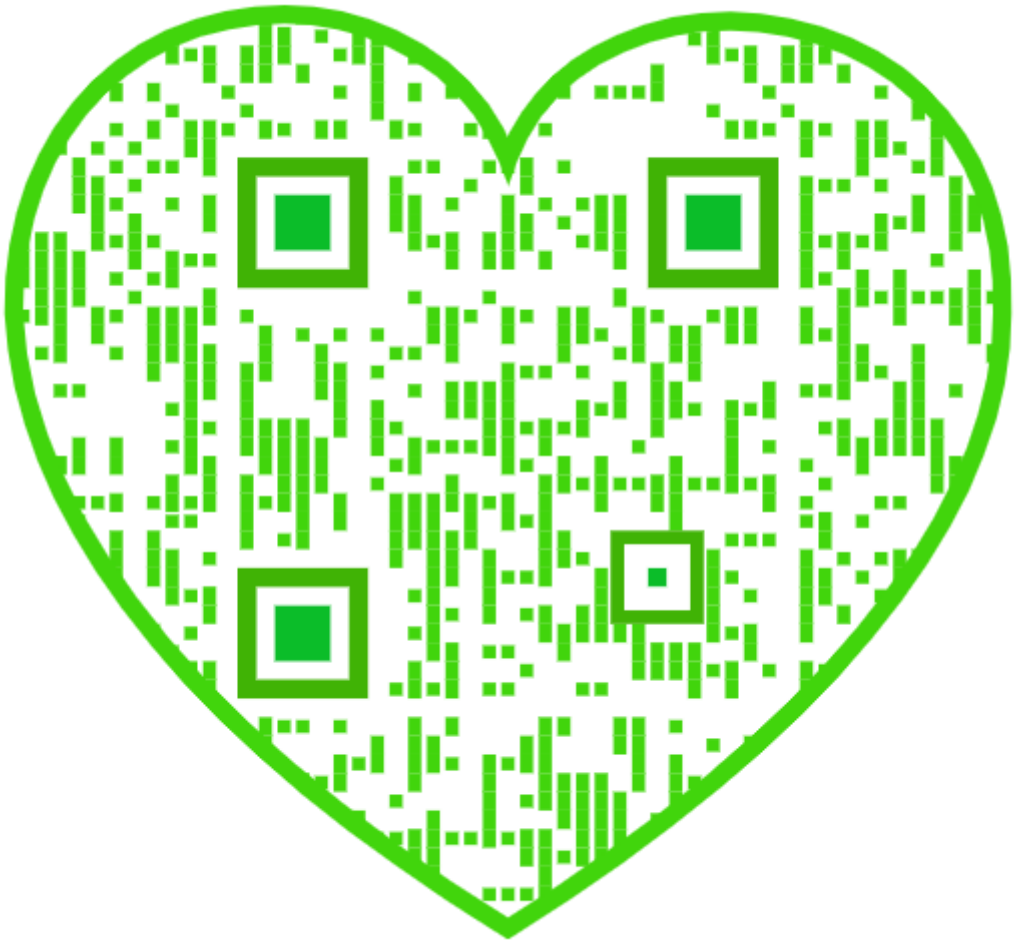

TRANSACTIONS

OF THE

AMERICAN ASSOCIATION

OF

OBSTETRICIANS AND GYNECOLOGISTS.

VOL. XIV.

FOR THE YEAR 1901.

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CATALOGUED
AUG 18 1902
E. H. B.

NOTE.

THE Association does not hold itself responsible for the views enunciated in the papers and discussions published in this volume.

WILLIAM WARREN POTTER, *Secretary*,
284 FRANKLIN STREET, BUFFALO.

[Minutes and discussions stenographically reported by WILLIAM WHITFORD, Chicago, Ill.]

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CONSTITUTION AND BY-LAWS

OF THE

AMERICAN ASSOCIATION

OF

OBSTETRICIANS AND GYNECOLOGISTS,

TOGETHER WITH

MINUTES OF THE FOURTEENTH ANNUAL MEETING.

AMERICAN ASSOCIATION

OF

OBSTETRICIANS AND GYNECOLOGISTS.

CONSTITUTION.

I. The name of this Association shall be THE AMERICAN ASSOCIATION OF OBSTETRICIANS AND GYNECOLOGISTS.

II. Its object shall be the cultivation and promotion of knowledge in whatever relates to Abdominal Surgery, Obstetrics, and Gynecology.

MEMBERS.

III. The members of this Association shall consist of Ordinary Fellows, Honorary Fellows, and Corresponding Fellows.

The Ordinary Fellows shall not exceed one hundred and twenty-five in number.

The Honorary Fellows shall not exceed ten American and twenty-five foreign.

Candidates shall be proposed to the Executive Council at least one month before the first day of meeting by two Fellows, and shall be balloted for at the annual meeting, a list of names having been sent to every Fellow with the notification of the meeting.

A two-thirds vote in the affirmative of all the members present shall be necessary to elect—fifteen Fellows at least being in attendance.

All candidates for active fellowship shall submit to the Executive Council, at least one month before the annual meeting, an original paper relating to Abdominal Surgery, Obstetrics, or Gynecology.

HONORARY FELLOWS.

IV. The power of nominating Honorary Fellows shall be vested in the Executive Council.

Their election shall take place in the same manner as that of Ordinary Fellows.

They shall enjoy all the privileges of Ordinary Fellows, excepting to vote or hold office, but shall not be required to pay any fee.

CORRESPONDING FELLOWS.

V. The Corresponding Fellows shall be recommended by the Executive Council and elected by the Association.

They shall enjoy all the privileges of Ordinary Fellows, excepting to vote or hold office, and shall be entitled to a copy of the annual TRANSACTIONS.

They shall pay an annual fee of five dollars.

OFFICERS.

VI. The officers of this Association shall be a President, two Vice-presidents, a Secretary, a Treasurer, and six Executive Councillors.

The nomination of all officers shall be made in open session at the business meeting, and the election shall be by ballot.

The first five officers shall enter upon their duties immediately before the adjournment of the meeting at which they shall be elected, and shall hold office for one year.

["At the election next succeeding the adoption of these laws, the full number of Executive Councillors shall be elected: two for a term of three years, two for a term of two years, and two for a term of one year.

"At every subsequent election two Councillors shall be elected for a term of three years, and shall continue in office until their successors shall have been elected and shall have qualified."][1]

Any vacancy occurring during the recess may be filled temporarily by the Executive Council.

ANNUAL MEETINGS.

VII. The time and place of holding the annual meeting shall be determined by the Association or may be committed to the Executive Council each time before adjournment.

It shall continue for three days, unless otherwise ordered by vote of the Association.

AMENDMENTS.

VIII. This Constitution may be amended by a two-thirds vote of all the Fellows present at the annual meeting: *provided*, that notice of the proposed amendment shall have been given in writing at the annual meeting next preceding: and *provided, further*, that such notice shall have been printed in the notification of the meeting at which the vote is to be taken.

[1] Amendment adopted September 21, 1898.

AMERICAN ASSOCIATION

OF

OBSTETRICIANS AND GYNECOLOGISTS.

BY-LAWS.

THE PRESIDING OFFICER.

I. The President, or in his absence one of the Vice-presidents, shall preside at all meetings, and perform such other duties as ordinarily pertain to the Chair.

The presiding officer shall be *ex-officio* chairman of the Executive Council, but shall vote therein only in case of a tie.

SECRETARY.

II. The Secretary shall attend and keep a record of all meetings of the Association and of the Executive Council, of which latter he shall be *ex-officio* clerk, and shall be entitled to vote therein.

He shall collect all moneys due from the members, and shall pay the same over to the Treasurer, taking his receipt therefor.

He shall supervise and conduct all correspondence of the Association; he shall superintend the publication of the TRANSACTIONS under the direction of the Executive Council, and shall perform all the ordinary duties of his office.

He shall be the custodian of the seal, books, and records of the Association.

TREASURER.

III. The Treasurer shall receive all moneys from the Secretary, pay all bills, and render an account thereof at the annual meetings, when an Auditing Committee shall be appointed to examine his accounts and vouchers.

EXECUTIVE COUNCIL.

IV. The Executive Council shall meet as often as the interests of the Association may require. The President, or any three members, may call a meeting, and a majority shall constitute a quorum.

It shall have the management of the affairs of the Association, subject to the action of the house at its annual meetings.

It shall have control of the publications of the Association, with full power to accept or reject papers or discussions.

It shall have control of the arrangements for the annual meetings, and shall determine the order of the reading of papers.

It shall constitute a court of inquiry for the investigation of all charges against members for offences involving law or honor; and it shall have the sole power of moving the expulsion of any Fellow.

ORDER OF BUSINESS.

V. The Order of Business at the annual meetings of the Association shall be as follows:

1. General meeting at 10 o'clock A.M.
   - *a.* Reports of Committees on Scientific Questions.
   - *b.* Reading of Papers and Discussion of the same.
2. One Business Meeting shall be held at half-past nine o'clock A.M. on the first day of the session, and another on the evening of the second day (unless otherwise ordered by vote), at which only the Fellows of the Association shall be present. At these meetings the Secretary's Record shall be read; the Treasurer's Accounts submitted; the Reports of Committees on other than scientific subjects offered; and all Miscellaneous Business transacted.

PAPERS.

VI. The titles of all papers to be read at any annual meeting shall be furnished to the Secretary *not later* than one month before the first day of the meeting.

No paper shall be read before the Association that has already been published, or that has been read before any other body.

Not more than thirty minutes shall be occupied in reading any paper before the Association.

Abstracts of all papers read should be furnished to the Secretary at the meeting.

All papers read before the Association shall become its sole property if accepted for publication; and the Executive Council may decline

to publish any paper not handed to the Secretary *complete* before the final adjournment of the annual meeting.

QUORUM.

VII. The Fellows present shall constitute a quorum for all business, excepting the admission of new Fellows or acting upon amendments to the Constitution, when not less than fifteen Fellows must be present.

DECORUM.

VIII. No remarks reflecting upon the personal or professional character of any Fellow shall be in order at any meeting, except when introduced by the Executive Council.

FINANCE.

IX. Each Fellow on admission shall pay an initiation fee of twenty-five dollars, which shall include his dues for the first year.

Every Fellow shall pay *in advance* (*i. e.*, at the beginning of each fiscal year) the sum of twenty dollars annually thereafter.

[A fiscal year includes the period of time between the first day of one annual meeting and the first day of the next.]

Any Fellow neglecting to pay his annual dues for two years may forfeit his membership, upon vote of the Executive Council.

The Secretary shall receive annually a draft from the President drawn on the Treasurer for a sum, to be fixed by the Executive Council, for the services he shall have rendered the Association during the year.

A contingent fund of one hundred dollars shall be placed annually at the disposal of the Secretary for current expenses, to be disbursed by him, and for which he shall present proper vouchers.

ATTENDANCE.

X. Any Fellow who shall neither attend nor present a paper for three consecutive years, unless he offer a satisfactory excuse, may be dropped from fellowship upon vote of the Executive Council.

RULES.

XI. *Robert's Rules of Order* shall be accepted as a parliamentary guide in the deliberations of the Association.

AMENDMENTS.

XII. These By-laws may be amended by a two-thirds vote of the Fellows present at any meeting; *provided*, previous notice in writing shall have been given at the annual meeting next preceding the one at which the vote is to be taken.

OFFICERS FOR 1901-1902.

PRESIDENT.

EDWIN RICKETTS, CINCINNATI.

VICE-PRESIDENTS.

CHARLES GREENE CUMSTON, BOSTON.
MILES F. PORTER, FORT WAYNE.

SECRETARY.

WILLIAM WARREN POTTER, BUFFALO.

TREASURER.

XAVIER OSWALD WERDER, PITTSBURG.

EXECUTIVE COUNCIL.

ALBERT VANDER VEER, ALBANY.
LEWIS SAMUEL McMURTRY, LOUISVILLE.
EDWARD JOSEPH ILL, NEWARK.
WILLIAM HENRY HUMISTON, CLEVELAND.
LEHMAN HERBERT DUNNING, INDIANAPOLIS.
WALTER BENAJAH CHASE, NEW YORK.

HONORARY FELLOWS.

* Deceased.

1899.—BALLANTYNE, JOHN WILLIAM, M.D., F.R.C.P.E., F.R.S. Edin. Lecturer on Midwifery and Gynecology, School of the Royal College, Edinburgh; Examiner in Midwifery and Gynecology in the University of Aberdeen; Vice-president of the Edinburgh Obstetrical Society; Honorary Fellow of the Glasgow Obstetrical and Gynecological Society. 24 Melville Street, Edinburgh, Scotland.

1889.—BANTOCK, GEORGE GRANVILLE, M.D., F.R.C.S. Ed. Surgeon to the Samaritan Free Hospital. 12 Granville Place, Portman Square, W., London, England.

1889.—BARBOUR, A. H. FREELAND, M.A., B.S.C., M.D., F.R.C.P. Ed., F.R.S. Ed. Lecturer on Midwifery and Diseases of Women in the Edinburgh Medical School; Assistant Physician to the Royal Maternity Hospital; Assistant Physician for Diseases of Women to the Royal Infirmary; Physician to the Women's Dispensary; Fellow of the Edinburgh and London Obstetrical Societies and of the British Gynecological Society; Corresponding Fellow of the Royal Academy of Medicine, Turin. 4 Charlotte Square, Edinburgh, Scotland.

1892.—*BOISLINIÈRE, L. CH., A.B., M.D., LL.D. St. Louis, Mo. 1896.

1890.—CHAMPIONNIÈRE, JUST. LUCAS, M.D. 3 Avenue Montaigne Paris, France.

1889.—*CHARPENTIER, LOUIS ARTHUR ALPHONSE, M.D. Paris, France. 1899.

1888.—CORDES, AUGUST ELISÉE, M.D. Member of the Royal College of Physicians, London; Fellow of the Obstetrical Society of London and of the British Gynecological Society; Corresponding National Member of the Obstetrical and Gynecological Society of Paris; Honorary Fellow of the Detroit Gynecological Society; late "Chirurgien-adjoint" of the Obstetrical and Gynecological Clinic at the Maternity at Geneva; Consulting Accoucheur of the Miséricorde

Hospital, etc.; Perpetual Member of the Société Obstétricale de France, Paris, France. 12 Rue Bellot, Geneva, Switzerland.

1890.—*Corson, Hiram, M.D. 1896.

1889.—Croom, J. Halliday, M.D., F.R.C.P.E., F.R.C.S.E., F.R.S.E. Physician to and Clinical Lecturer on Diseases of Women, Royal Infirmary, Edinburgh; Physician to the Royal Maternity Hospital; Lecturer on Midwifery and the Diseases of Women at the School of Medicine; Consulting Physician for Diseases of Women, Western Dispensary. 25 Charlotte Square, Edinburgh, Scotland.

1889.—*Dunlap, Alexander, A.M., M.D. Springfield, O. 1894.

1888.—*Edis, Arthur Wellesley, M.D. Lond., F.R.C.S., M.R.S.C.S. London, England. 1893.

1889.—*Eklund, Abraham Fredrik, M.D. 3 A. Sibyllegatan, Stockholm, Sweden. 1898.

1891.—Fernandez, Juan Santos, M.D. Calle de la Reina, No. 92, Havana, Cuba.

1891.—*Fisher, George Jackson, A.M., M.D. Sing Sing, N. Y. 1893.

1889.—Freund, William Alexander, M.D. Professor and Director of the Clinic for Diseases of Women in the University of Berlin, Kleiststrasse 5, Berlin W., Germany.

1896.—Gaston, James McFadden, A.M., M.D. Professor of Surgery in the Southern Medical College, Atlanta; Fellow of the American Surgical Association; Member of the Southern Surgical and Gynecological Association. 421 Capitol Avenue, Atlanta, Ga.

1892.—*Green, Traill, M.D., LL.D. Easton, Pa. 1897.

1894.—Jacobs, Charles, M.D. Professor of the Faculty of Medicine of Brussels; Secretary-General of the Permanent Committee of the Periodic International Congress of Gynecology and Obstetrics; Honorary President of the Belgian Society of Gynecology and Obstetrics; Honorary Fellow of the Gynecological Societies of New York and Chicago; Member of the Southern Surgical and Gynecological Association; Corresponding Member of the Gynecological Society of Paris; Surgeon to the Brussels Polyclinic. 53 Boulevard de Waterloo, Brussels, Belgium.

1889.—*Keith, Thomas, M.D. London, England. 1896.

1889.—LEOPOLD, G., M.D. Professor in the Royal Clinic for Diseases of Women. 12 Seminar-Strasse, Dresden, Germany.

1894.—MACLEAN, DONALD, M.D. President of the American Medical Association, 1894. 72 Lafayette Avenue, Detroit, Mich.

1890.—MARTIN, AUGUST, M.D. Professor of Gynecology in the University of Greifswald, Greifswald, Germany.

1895.—*MASTIN, CLAUDIUS HENRY, M.D., LL.D. Mobile, Ala. 1898.

1897.—MATHEWS, JOSEPH MCDOWELL, M.D. Professor of Diseases of the Rectum and Clinical Surgery, Hospital College of Medicine; President of the Kentucky State Board of Health; First Vice-president American Medical Association, 1898; President, 1899. 923 Fourth Avenue, Louisville, Kentucky.

1891.—*MOSES, GRATZ ASHE, M.D. St. Louis, Mo. 1901.

1889.—NICOLAYSEN, JULIUS, M.D. Professor of Surgery in the University of Norway. Christiania, Norway.

1891.—PIETRANERA, E., M.D. Professor of Obstetrics in the Medical Department of the National University; Director of the Maternity Branch of the Clinical Hospital. 2711 Calle Rio Adaria, Buenos Ayres, Argentine Republic, S. A.

1889.—SAENGER, MAX, M.D. Professor of Obstetrics and Gynecology, University of Prague; late President of the Leipzig Obstetrical Society; Honorary Member of the Obstetrical Societies of Philadelphia and Chicago; Honorary Member of the Belgian Gynecological Society, Brussels; Honorary Member of the Gynecological Society, Kiew; Corresponding Member of the Medical Society of Christiania, Norway. Heuwaagsplatz 3, Prague, Germany.

1890.—SAVAGE, THOMAS, M.D., F.R.C.S. Eng. Surgeon to the Birmingham Hospital for Women. 33 Newhall Street, Birmingham, England.

1889.—SCHULTZE, BERNHARD SIGMUND, M.D. Professor of Gynecology; Director of the Lying-in Institute and of the Gynecological Clinic. 2 Sellierstrasse, Jena, Germany.

1896.—SEGOND, PAUL, M.D. Professor of the Faculty of Medicine Paris; Surgeon to the Salpêtrière; Principal Physician to the Orleans Railroad. 11 Quai d'Orsay, Paris, France.

1899.—Sinclair, William Japp, M.A., M.D. (Aberd.), M.R.C.P. Professor of Obstetrics and Gynecology, Owens College, Victoria University; Physician to the Manchester Southern Hospital for Diseases of Women and Children. 250 Oxford Road, Manchester, England.

1894.—*Slaviansky, Kronid, M.D. 24 Liteinaia Street, St. Petersburg, Russia. 1898.

1888.—*Smith, J. Greig, M.A., C.M., M.B., F.R.S.E. Bristol, England. 1897.

1896.—Sternberg, George Miller, A.M., M.D., LL.D. Brigadier-General and Surgeon-General, U. S. Army. Washington, D. C.

1899.—*Storrs, Melancthon, A.M., M.D. (Transferred from Ordinary Fellow.) Hartford, Conn. 1900.

1888.—*Tait, Lawson, M.D., LL.D., F.R.C.S.E. Birmingham, England. 1899.

1900.—Thornton, J. Knowsley, M.B., M.C. Corresponding Fellow of the Boston Gynecological Society; Past President of the Medical Society of London. Hildersham Hall, Cambridge, England.

1888.—Williams, Sir John, Bart., M.D., F.R.C.P. 63 Brook Street, Grosvenor Square, W., London, England.

1901.—Weber, G. C. Willoughby, Ohio.

1889.—von Winckel, F., M.D. Professor of Gynecology and Director of the Royal Hospital for Women; Member of the Supreme Council and of the Faculty of Medicine in the University of Munich. 16a Sonnenstrasse, Munich, Germany.

Total, twenty-six Honorary Fellows.

CORRESPONDING FELLOWS.

1899.—BEUTTNER, OSCAR, M.D. Private-docent of the Faculty of Medicine. 2 Place de la Fasterie, Geneva, Switzerland.

1891.—GRIFFIN, HERBERT SPOHN, B.A., M.D. Surgeon to Hamilton City Hospital; Examiner in Obstetrics, University of Toronto. 157 Main Street, Hamilton, Ontario, Canada.

1891.—MACHELL, HENRY THOMAS, M.D., L.R.C.P. Ed. Lecturer on Obstetrics, Women's Medical College; Surgeon to St. John's Hospital for Women; Physician to Victoria Hospital for Sick Children and to Hillcrest Convalescent Home. 95 Bellevue Avenue, Toronto, Ontario, Canada.

1898.—WRIGHT, ADAM HENRY, B.A., M.D., Univ. Toronto, M.R.C.S. Eng. Professor of Obstetrics in the University of Toronto; Obstetrician and Gynecologist to the Toronto General Hospital and Burnside Lying-in Hospital. President, 1891. (Transferred from Ordinary List, 1898.) 30 Gerrard Street, East, Toronto, Ont., Canada.

Total, four Corresponding Fellows.

ORDINARY FELLOWS.

* Deceased. † Resigned.

1890.—ASDALE, WILLIAM JAMES, M.D. Professor of Diseases of Women, Western Pennsylvania Medical College (Medical Department, University of Western Pennsylvania). 5523 Ellsworth Avenue, Pittsburg, Pa.

1895.—BACON, JOSEPH BARNES, M.D. Professor of Rectal Diseases at the Post-Graduate Medical School; Instructor in Clinical Surgery in the Medical Department of Northwestern University. 4125 Drexel Boulevard, Chicago, Ill.

Founder.—BAKER, WASHINGTON HOPKINS, M.D. Senior Obstetrician to the Maternity Hospital; Physician to the German Hospital. 1610 Summer Street, Philadelphia, Pa.

1895.—BALDWIN, JAMES FAIRCHILD, A.M., M.D. Surgeon to Grant Hospital, 125 South Grant Avenue. Residence 405 E. Town Street, Columbus, Ohio.

1889.—BARROW, DAVID, M.D. Member of the Southern Surgical and Gynecological Association. 22 East Market Street, Lexington, Kentucky.

1892.—BLUME, FREDERICK, M.D. Gynecologist to the Allegheny General Hospital and Pittsburg Free Dispensary; Obstetrician to the Roselia Maternity Hospital; Consulting Gynecologist to the Mercy Hospital; President of the Pittsburg Obstetrical Society, 1892. 524 Penn Avenue, Pittsburg, Pa.

1900.—BONIFIELD, CHARLES LYBRAND, M.D. Professor of Clinical Gynecology in the Medical College of Ohio; President of the Cincinnati Academy of Medicine, 1900 ; Gynecologist to the Good Samaritan, Christ's, and to Speer's Memorial Hospitals; formerly President of the Cincinnati Obstetrical Society; Secretary of the Section on Obstetrics and Gynecology, American Medical Association, 1901. 2142 Auburn Avenue, Cincinnati, Ohio.

1896.—Bosher, Lewis C., M.D. Professor of the Principles of Surgery and Clinical Lecturer on Genito-urinary Surgery, Medical College of Virginia; Visiting Surgeon to the Old Dominion Hospital. 717 East Franklin Street, Richmond, Va.

Founder.—Boyd, James Peter, A.M., M.D. Professor of Obstetrics, Gynecology, and Diseases of Children in the Albany Medical College; Gynecologist to the Albany Hospital; Consulting Obstetric Surgeon to St. Peter's Hospital; Fellow of the British Gynecological Society. 152 Washington Avenue, Albany, N. Y.

1889.—Branham, Joseph H., M.D. Demonstrator of Anatomy in the College of Physicians and Surgeons; Visiting Surgeon to Bayview Hospital. 2200 Eutaw Place, cor. Ninth Avenue, Baltimore, Md.

1894.—Brown, John Young, Jr., M.D. Late First Assistant Physician in the Central Kentucky Asylum for the Insane; President of the Mississippi Valley Medical Association, 1898. Corner Maryland and Euclid Avenues, St. Louis, Mo.

1889.—*Burns, Bernard, M.D. Allegheny, Pa. 1892.

1898.—Cameron, Markley Connell, M.D. Demonstrator of Gynecology, Western Pennsylvania Medical College; Assistant Physician, Western Pennsylvania Hospital. 190 Forty-third Street, Pittsburg, Pa.

Founder.—Carstens, J. Henry, M.D. Professor of Obstetrics and Clinical Gynecology in the Detroit College of Medicine; Gynecologist to the Harper Hospital; Attending Physician to the Woman's Hospital; Obstetrician to the House of Providence; President of the Detroit Gynecological Society, 1892. *Vice-president*, 1888–89; *President*, 1895; *Executive Council*, 1896–98. 620 Woodward Avenue, Detroit, Mich.

1895.—Chase, Walter Benajah, M.D. Gynecologist to the Bushwick Hospital; Attending Surgeon and Gynecologist, Central Hospital and Dispensary; Consulting Gynecologist to the Long Island College Hospital; Councillor to the Long Island College Hospital; Fellow of the Brooklyn Gynecological Society (President, 1893); Member Medical Society County of Kings (President, 1892); Permanent Member Medical Society State of New York; Member of the Brooklyn Pathological Society, and Honorary Member of the Queens County Medical Society. *Executive Council*, 1899–1902. 263 Hancock Street, New York, Borough of Brooklyn.

Founder.—CLARKE, AUGUSTUS PECK, A.M., M.D. Dean and Professor of Gynecology and Abdominal Surgery in the College of Physicians and Surgeons, Boston; Vice-president of the American Medical Association, 1896; President of the Gynecological Society of Boston, 1891–92; Vice-president of the Pan-American Medical Congress, 1893, and of the Pan-American Medical Congress, Mexico, 1896; Honorary President of the Section of Obstetrics and Gynecology of the Twelfth International Medical Congress, Moscow, Russia, 1897; Member of the Massachusetts Medical Society; Fellow of the American Academy of Medicine; Member of the American Public Health Association. 825 Massachusetts Avenue, Cambridge, Mass.

1890.—*COLES, WALTER, M.D. St. Louis, Mo. 1892.

1892.—†CORDIER, ALBERT HAWES, M.D. Kansas City, Mo. 1900.

1901.—CRILE, GEORGE W., A.M., M.D. Professor of Clinical Surgery in the Western Reserve University Medical College; Surgeon to St. Alexis's Hospital; Associate Surgeon to Lakeside Hospital. 169 Kensington Street, Cleveland, Ohio.

1894.—CROFFORD, THOMAS JEFFERSON, M.D. Professor of Physiology and Clinical Lecturer on Diseases of Women in the Memphis Hospital Medical College; Member of the Southern Surgical and Gynecological Association. *Vice-president*, 1900. 155 Third Street, Memphis, Tenn.

1897.—CUMSTON, CHARLES GREENE, B.M.S., M.D. (Geneva, Switzerland). Assistant Professor of Surgical Pathology, Tufts College Medical School, Boston; Member of the Massachusetts Medical Society; Honorary Member of the Surgical Society of Belgium, and Corresponding Member of the Obstetrical and Gynecological Society of Paris; Corresponding Member of the Association of Genito-urinary Surgeons of France; Corresponding Member of the Pathological Society of Brussels, Belgium; Corresponding Member of the Electrotherapeutical Society of France. *Vice-president*, 1902. 871 Beacon Street, Boston, Mass.

Founder.—†CUSHING, CLINTON, M.D. San Francisco, Cal. 1900.

1889.—DAVIS, WILLIAM ELIAS B., M.D. Professor of Gynecology and Abdominal Surgery in the Birmingham Medical College; Secretary of the Southern Surgical and Gynecological Association, 1888–1900; formerly Surgeon to the Birmingham Hospital of United Charities; President of the Tri-State Medical Society of Alabama, Georgia, and Tennessee, 1892: Secretary of the Surgical Section of the Ameri-

can Medical Association, 1891; Honorary President of the Section on Gynecology and Abdominal Surgery of the First Pan-American Medical Congress; Honorary Member of the Medical Society of the State of New York. *Vice-president*, 1895; *Executive Council*, 1897–1900; *President*, 1901. 2031 Avenue G., Birmingham, Ala.

1896.—DEAVER, JOHN BLAIR, M.D. Formerly Assistant Professor of Applied Anatomy at the University of Pennsylvania; Visiting Surgeon to the German Hospital. 1634 Walnut Street, Philadelphia, Pa.

1892.—DORSETT, WALTER BLACKBURN, M.D. Professor of Obstetrics and Gynecology in the Marion Sims-Beaumont College of Medicine; Gynecologist to the Missouri Baptist Sanitarium and Evangelical Deaconess's Hospital; Consulting Gynecologist to the St. Louis City and Female Hospitals. President of the St. Louis Medical Society, 1892. President of the Missouri State Medical Society, 1900. *Vice-president*, 1898. 3941 West Belle Place, St. Louis, Mo.

1889.—DOUGLAS, RICHARD, M.D. Professor of Gynecology and Abdominal Surgery in the Vanderbilt Medical College; President of the Tri-State Medical Society of Alabama, Georgia, and Tennessee, 1893; Fellow of the British Gynecological Society; President of the Southern Surgical and Gynecological Association, 1898. *Vice-president*, 1898. 110 South Spruce Street, Nashville, Tenn.

1901.—DUDLEY, CLIFTON ROGERS, M.D. Instructor in Obstetrics in the Beaumont Hospital Medical College. 903 North Taylor Avenue, St. Louis, Mo.

1892.—DUFF, JOHN MILTON, A.M., M.D., Ph.D. Chairman of the Section on Obstetrics and Diseases of Women in the American Medical Association, 1893; Professor of Obstetrics in the Western Pennsylvania Medical College; Gynecologist to the Western Pennsylvania Hospital; Consulting Surgeon and Gynecologist to the South Side Hospital; Fellow of the American Academy of Medicine; President of the Pittsburg Obstetrical Society, 1891. *Executive Council*, 1898–1900. Horne Office Building, 515 Penn Avenue, Pittsburg, Pa.

1895.—DUNN, B. SHERWOOD, M.D. Officier d'Académie; Corresponding Member of the Société Obstétrique et Gynécologique de Paris; Member of the Société Clinique des Praticiens de France, etc. Room 159, 80 Broadway, New York.

1898.—DUNN, JAMES C., M.D. Obstetrician to Reineman Maternity Hospital. 208 Winebiddle Avenue, Pittsburg, Pa.

1895.—†DUNN, JAMES HENRY, M.D. Minneapolis, Minn. 1899.

1892.—DUNNING, LEHMAN HERBERT, M.D. Professor of Diseases of Women in the Medical College of Indiana; Consulting Gynecologist to the Indianapolis City Hospital and Dispensary. *Executive Council*, 1899-1902; *Vice-president*, 1900. Willoughby Building, 224 North Meridian Street, Indianapolis, Ind.

1895.—EARLE, FRANK BRECKINRIDGE, M.D. Professor of Obstetrics at the College of Physicians and Surgeons. 903 West Monroe Street, Chicago, Ill.

1899.—EASTMAN, THOMAS BARKER, A.B., M.D. Professor of the Medical and Surgical Diseases of Women, Central College of Physicians and Surgeons; Gynecologist to the City Hospital, City Dispensary, and Central Free Dispensary. 331 North Delaware Street, Indianapolis, Ind.

1895.—FERGUSON, ALEXANDER HUGH, M.D. Professor of Surgery at the Chicago Post-Graduate Medical School. 2950 Indiana Avenue, Chicago, Ill.

1895.—FISH, EDMUND FROST, M.D. Professor of Gynecology in Milwaukee Medical College; Gynecologist to the Trinity and Milwaukee County Hospital; Gynecologist to the Milwaukee Free Dispensary, Wells Building, 118 Wisconsin Street, Milwaukee, Wis.

1890.—FREDERICK, CARLTON CASSIUS, B.S., M.D. Clinical Professor of Gynecology in the Medical Department of Buffalo University; Obstetrician and Gynecologist to the Buffalo Woman's Hospital; Obstetrician to the Widows' and Infants' Asylum; Gynecologist to the Erie County Hospital. 64 Richmond Avenue, Buffalo, N. Y.

1891.—GIBBONS, HENRY, JR., A.M., M.D. Dean and Professor of Obstetrics and Diseases of Women and Children in Cooper Medical College; Consulting Physician to the French and the Children's Hospitals. 920 Polk Street, San Francisco, Cal.

1895.—GILLIAM, DAVID TOD, M.D. Professor of Gynecology, Starling Medical College; Gynecologist to St. Anthony Hospital; Gynecologist to St. Francis Hospital; Consulting Gynecologist to State Street Dispensary; Member of the American Medical Association, Mississippi Valley Medical Association and Ohio State Medical Society; Honorary Member of the Northwestern Medical Society; Member and Ex-president of Columbus Academy of Medicine. 70 Winner Avenue, Columbus, Ohio.

1895.—GOLDSPOHN, ALBERT, M.D. Professor of Gynecology, Post-Graduate Medical School; Senior Gynecologist, German Hospital;

Attending Gynecologist, Post-Graduate and Charity Hospitals. *Vice-president*, 1901. 519 Cleveland Avenue, Chicago, Ill.

1894.—GRIFFITH, JEFFERSON DAVIS, M.D. Professor of Surgery in the Kansas City Medical College; Surgeon to St. Joseph's Hospital and to the Children's Hospital. President of the Missouri State Medical Association, 1902. Corner Grand Avenue and Thirty-fifth Street, Kansas City, Mo.

1892.—*HAGGARD, WILLIAM DAVID, M.D. 1901.

1900.—HAGGARD, WILLIAM DAVID, JR., M.D. Professor of Gynecology, Medical Department University of Tennessee; Professor of Gynecology and Abdominal Surgery, University of the South (Sewanee); Gynecologist to the Nashville City Hospital; President of the Nashville Academy of Medicine; Secretary of the Section on Diseases of Women and Obstetrics, American Medical Association, 1898; Fellow (and Secretary) of the Southern Surgical and Gynecological Association; Member of the Alumni Association of the Woman's Hospital, N. Y. 302 Vine, corner Union Street, Nashville, Tenn.

1889.—HALL, RUFUS BARTLETT, A.M., M.D. Professor of Gynecology and Clinical Gynecology at the Miami Medical College; Gynecologist to the Presbyterian Hospital; Member of the British Gynecological Association; of the Southern Surgical and Gynecological Association; of the American Medical Association; of the Ohio State Medical Society (President, 1900); of the Cincinnati Academy of Medicine; President of the Cincinnati Obstetrical Society, 1896. *Vice-president*, 1891. *President*, 1900. Berkshire Building, 628 Elm Street, Cincinnati, O.

1894.—HAYD, HERMAN EMILIE, M.D., M.R.C.S. Eng. Gynecologist to the Erie County Hospital. 493 Delaware Avenue, Buffalo, N. Y.

Founder.—*HILL, HAMPTON EUGENE, M.D. 1894.

1891.—HOLMES, JOSUS BILLINGTON SANDERS, M.D. Professor of Obstetrics in the Southern Medical College; President of the Georgia State Medical Association, 1890; Member of the Southern Surgical and Gynecological Association; Member of the American Medical Association. 17 West Cain Street, Atlanta, Georgia.

1891.—HOWITT, HENRY, M.D., M.R.C.S. Eng. Surgeon to the Guelph General and St. Joseph's Hospital, Guelph; Member of the British and Ontario Medical Association; Medical Health Officer for the City of Guelph. *Vice-president*, 1895. 235 Woolwich Street, Guelph, Ontario, Canada.

1896.—HUGHES, GEORGE MAURICE, M.D. Formerly Physician in Charge of the Obstetrical and Gynecological Department of the Philadelphia Dispensary. 1003 Sutter Street, San Francisco, Cal.

1895.—HUMISTON, WILLIAM HENRY, M.D. Associate Professor of Gynecology in the Medical Department of Western Reserve University; Gynecologist-in-chief to the St. Vincent's Charity Hospital; Consulting Gynecologist to the City Hospital; President of the Ohio State Medical Society, 1898. *Executive Council*, 1902. 536 Rose Building, Cleveland, O.

1898.—HYDE, JOEL W., M.D. Obstetric Surgeon to St. Mary's Hospital; Consulting Obstetrician to the Long Island College Hospital; Consulting Gynecologist to Central Hospital. 215 Schermerhorn Street, Brooklyn, N. Y.

1892.—†HYPES, BENJAMIN MURRAY, A.M., M.D. St. Louis, Mo. 1900.

1901.—ILL, CHARLES L., M.D. Surgeon to German Hospital; Assistant Gynecologist to St. Michael's and St. Barnabas's Hospital; Obstetrician to St. Barnabas's Hospital, Newark; Assistant Gynecologist to All Souls' Hospital, Morristown. 188 Clinton Avenue, Newark, N. J.

Founder.—ILL, EDWARD JOSEPH, M.D. Surgeon to the Woman's Hospital; Medical Director of St. Michael's Hospital; Gynecologist and Supervising Obstetrician to St. Barnabas's Hospital; Consulting Gynecologist to the German Hospital and the Bnoth Israel Hospital of Newark, N. J., to All Souls' Hospital, Morristown, N. J., and to the Mountain Side Hospital, Montclair, N. J.; Member of the Southern Surgical and Gynecological Association. Vice-president from New Jersey to the Pan-American Medical Congress of 1893. *Vice-president*, 1893. *President*, 1899. *Executive Council*, 1901. 1002 Broad Street, Newark, N. J.

1897.—INGRAHAM, HENRY DOWNER, M.D. Clinical Professor of Gynecology and Pediatrics, Medical Department of the University of Buffalo; Consulting Gynecologist to the Buffalo Woman's Hospital and to the Erie County Hospital; Consulting Gynecologist to Providence Hospital. 405 Franklin Street, Buffalo, N. Y.

Founder.—*JARVIS, GEORGE CYPRIAN, M.D. Hartford, Conn. 1900.

1894.—JAYNE, WALTER ADDISON, M.D. Professor of Gynecology in the Medical Department of the University of Denver; Consultant

in Gynecology, St. Luke's Hospital; Gynecologist to the Arapahoe County Hospital, Denver. 416 McPhee Building, Denver, Col.

1892.—JELKS, JAMES THOMAS, M.D. President of the Arkansas Medical Society, 1892; Chairman of the Section on Surgery in the American Medical Association, 1898; Professor of Gynecology in Barnes Medical College, St. Louis, Mo. Member of the Southern Surgical and Gynecological Association. 178 Central Avenue, Hot Springs, Ark.

1894.—†JENNINGS, CHARLES GODWIN, M.D. Detroit, Mich. 1901.

1891.—JOHNSTON, GEORGE BEN, M.D. Professor of Gynecology and Abdominal Surgery in the Medical College of Virginia; Surgeon to the Old Dominion Hospital; Physician to St. Joseph's Female Orphan Asylum; Consulting Surgeon to the City Free Dispensary; Member of the American Surgical Association; Vice-president of the Southern Surgical and Gynecological Association, 1892; President, 1897; Ex-president of the Richmond Medical and Surgical Society; President of the Virginia State Medical Society, 1897. *Vice-president*, 1897. 407 East Grace Street, Richmond, Va.

1900.—KELLY, WEBB J., M.D. Surgeon to the Erie and Cleveland, Columbus, Cincinnati and St. Louis Railways; formerly Professor of Operative Surgery at the Ohio Medical University at Columbus. 321 North Downing Street, Piqua, O.

1893.—LAIDLEY, LEONIDAS HAMLIN, M.D. Professor of Gynecology in the Beaumont Hospital Medical College; Surgeon-in-chief to the Protestant Hospital. 3538 Washington Avenue, St. Louis, Mo.

1898.—LANGFIT, WILLIAM STERLING, M.D. Surgeon-in-chief to St. John's Hospital. 688 Preble Avenue, Allegheny, Pa.

1901.—LINCOLN, WALTER RODMAN, B.A., M.D. Lecturer in Gynecology, College of Physicians and Surgeons of Cleveland, O. Euclid Heights, Overlook Road, Cleveland, O.

1900.—LINVILLE, MONTGOMERY, A.B., M.D. Surgeon to Slemango Valley Hospital; Surgeon to three lines of Pennsylvania Railways. 35 North Mercer Street, New Castle, Pa.

1890.—LONGYEAR, HOWARD WILLIAMS, M.D. Gynecologist to Harper Hospital; Physician to the Woman's Hospital; President of the Detroit Gynecological Society, 1889; Chairman of the Section on Obstetrics and Gynecology of the Michigan State Medical Society, 1892. *Vice-president*, 1893. 271 Woodward Avenue, Detroit, Mich.

Founder.—†Lothrop, Thomas, M.D. Buffalo, N. Y. 1899.

1896.—Lyons, John Alexander, M.D. Instructor in Gynecology at the Post-Graduate Medical School; Gynecologist and Lecturer to Nurses at the Chicago Hospital. 4118 State Street, Chicago, Ill.

1891.—Macdonald, Willis Goss, M.D. Lecturer on Operative Surgery and Instructor in Abdominal Surgery in Albany Medical College; Surgeon to the Out-door Department of the Albany Hospital. President of the Medical Society of the State of New York, 1900. 27 Eagle Street, Albany, N. Y.

1901.—McCandless, William A., A.M., M.D. Chief Surgeon St. Mary's Infirmary; Visiting Surgeon to the City Hospital; Professor of Special and Clinical Surgery, Marion Sims-Beaumont College of Medicine. 3857 Westminster Place, St. Louis, Mo.

1891.—*McCann, James, M.D. Pittsburg, Pa. 1893.

1898.—McCann, Thomas, M.D. Professor of Surgery, etc., Western Pennsylvania Medical College; Visiting Surgeon, Western Pennsylvania Hospital. 5745 Centre Street, Pittsburg, Pa.

1894.—†McGuire, Edward, M.D. Richmond, Va. 1900.

Founder.—McMurtry, Lewis Samuel, A.M., M.D. Professor of Gynecology in the Hospital College of Medicine; Gynecologist to Sts. Mary and Elizabeth Hospital; Fellow of the Edinburgh Obstetrical Society; Fellow of the British Gynecological Society; Corresponding Member of the Obstetrical Society of Philadelphia and of the Gynecological Society of Boston; Member (President, 1891) of the Southern Surgical and Gynecological Association. *Executive Council*, 1891–1892, 1895–1902; *President*, 1893. 1912 Sixth Street, Louisville, Ky.

Founder.—Manton, Walter Porter, M.D. Professor of Clinical Gynecology and Adjunct Professor of Obstetrics, Detroit College of Medicine; Gynecologist to Harper Hospital and the Eastern Michigan Asylum for the Insane; Vice-president of Medical Board of the Woman's Hospital and Foundlings' Home; Consulting Gynecologist to the Northern Michigan Asylum and St. Joseph's Retreat; Gynecic Surgeon to the House of the Good Shepherd; President of the Detroit Academy of Medicine, 1892–1894; President of the Detroit Gynecological Society, 1890; Fellow of the British Gynecological Society; Fellow of the Royal Microscopical Society and of the Zoological Society of London. *Vice-president*, 1894. 32 Adams Avenue, W. Detroit, Mich.

Founder.—MAXWELL, THOMAS JEFFERSON, M.D. Professor of the Principles and Practice of Surgery and Clinical Surgery in the Keokuk Medical College; Surgeon to St. Joseph's Hospital. 727 North Ninth Street, Keokuk, Iowa.

1893.—*MICHAEL, JACOB EDWIN, A.M., M.D. Baltimore, Maryland. 1895.

Founder.—MILLER, AARON BENJAMIN, M.D. Professor of Gynecology in the Medical Department of Syracuse University; Gynecologist to St. Joseph's Hospital, House of the Good Shepherd and Dispensary. *Vice-president*, 1899. 326 Montgomery Street, Syracuse, N. Y.

1896.—*MOONEY, FLETCHER D., M.D. St. Louis, Mo. 1897.

1890.—MORRIS, ROBERT TUTTLE, A.M., M.D. Professor of Surgery in the New York Post-Graduate Medical School and Hospital. *Vice-president*, 1892. 58 West Fifty-sixth Street, New York, N. Y.

Founder.—*MOSES, GRATZ ASHE, M.D. St. Louis, Mo. 1901. (See Honorary Fellows.)

1894.—MURPHY, JOHN BENJAMIN, A.M., M.D. Professor of Surgery in the College of Physicians and Surgeons and in the Post-Graduate Medical College; Attending Surgeon to the Cook County Hospital and to Alexander Hospital. Residence, 3152 Michigan Avenue; Office, 400 Reliance Building, 100 State Street, Chicago, Ill.

Founder.—MYERS, WILLIAM HERSCHEL, M.D. Professor of Clinical and Abdominal Surgery, Fort Wayne College of Medicine; Surgeon to St. Joseph's Hospital; Member of the American and the British Medical Associations; Member of the Pathological Society of London; Member of the International Congress of Gynecologists and Obstetricians; Member of the Chicago Medical Society. *Vice-president*, 1890. 157 West Wayne Street, Fort Wayne, Ind.

1897.—NICHOLS, WILLIAM R., M.D. Markham, Ont., Canada.

1896.—NOBLE, GEORGE HENRY, M.D. Gynecologist to the Grady Hospital; Secretary of the Section on Obstetrics and Gynecology of American Medical Association, 1897; Member of the Southern Surgical and Gynecological Association. 131 and 133 South Pryor Street, Atlanta, Ga.

1889.—PAINE, JOHN FANNIN YOUNG, M.D. Professor of Obstetrics and Gynecology in the School of Medicine, University of Texas; Obstetrician and Gynecologist to the John Sealy Hospital; President of the Texas State Medical Association, 1888; Vice-president of the

Section on Public and International Hygiene in the Ninth International Medical Congress; Member of the American Medical Association and the Southern Surgical and Gynecological Association. S. E. corner Broadway and Twenty-sixth Street, Galveston, Texas.

1899.—PANTZER, HUGO O., M.D. Gynecologist to the City Hospital and City Dispensary; Consulting Gynecologist to the Deaconess's Hospital and to the Indiana State Hospital. 316 East Michigan Street, Indianapolis, Ind.

1890.—PEARSON, WILLIAM LIBBEY, M.D. 713 Union Street, Schenectady, N. Y.

1891.—PECK, GEORGE SHERMAN, M.D. Consulting Surgeon to the Youngstown City Hospital. *Vice-president*, 1896. 26 West Federal Street, Youngstown, Ohio.

1899.—PFAFF, ORANGE G., M.D. Adjunct Professor of Obstetrics and Diseases of Women in the Medical College of Indiana; Gynecologist to the City, Deaconess's, and St. Vincent's Hospitals. 1337 North Pennsylvania Street, Indianapolis, Ind.

1898.—PORTER, MILES F., M.D. Ex-president Indiana State Medical Society. *Vice-president*, 1902. 47 West Wayne Street, Fort Wayne, Ind.

Founder.—POTTER, WILLIAM WARREN, M.D. Consulting Gynecologist to the Woman's Hospital; Consulting Surgeon to the Buffalo General Hospital; President and Examiner in Obstetrics, New York State Medical Examining and Licensing Board; Chairman of Section of Obstetrics and Diseases of Women, American Medical Association, 1890; President of the Buffalo Obstetrical Society, 1884–1886; Member of the Southern Surgical and Gynecological Association; President of the Medical Society of the State of New York, 1891; Executive President of the Section of Gynecology and Abdominal Surgery, Pan-American Medical Congress, 1893. *Secretary*, 1888–1902. 284 Franklin Street, Buffalo, N. Y.

1891.—*PRAEGER, E. ARNOLD, M.D. Los Angeles, Cal. 1898.

Founder. — PRICE, JOSEPH, M.D. Physician-in-charge of the Obstetrical and Gynecological Department of the Philadelphia Dispensary; Member of the Southern Surgical and Gynecological Association; Honorary Fellow of the Medical Society of the State of New York; Honorary Fellow of the South Carolina Medical Society; Honorary Fellow of the Virginia Medical Society; Member of the British Gynecological Association and of the Edinburgh Obstetrical Society. *Executive Council*, 1894–1895. *President*, 1896. 241 North Eighteenth Street, Philadelphia, Pa.

Founder.—REED, CHARLES ALFRED LEE, A.M., M.D. Professor of Gynecology and Abdominal Surgery in the Cincinnati College of Medicine and Surgery and in the Woman's Medical College of Cincinnati; Surgeon to the Cincinnati Free Surgical Hospital for Women; Secretary-General of the First Pan-American Medical Congress, 1893; Member of the Southern Surgical and Gynecological Association; Fellow of the British Gynecological Society; President of the American Medical Association, 1901. *Executive Council*, 1890–1897; *President*, 1898. Rooms 61 and 62, The Groton, N. E. corner Seventh and Race Streets, Cincinnati, Ohio.

1896.—*RHETT, ROBERT BARNWELL, JR., M.D. Charleston, S. C. 1901.

1890.—RICKETTS, EDWIN, M.D. Professor of Abdominal Surgery and Gynecology at the Cincinnati Polyclinic; Member of the American and British Medical Association; Member of the Southern Surgical and Gynecological Association. *Vice-president*, 1899. *Executive Council*, 1901. *President*, 1902. 408 Broadway, Cincinnati, Ohio.

1889.—*ROHÉ, GEORGE HENRY, M.D. Baltimore, Md. 1899.

1892.—ROSENWASSER, MARCUS, M.D. Dean and Professor of Diseases of Women and Abdominal Surgery in the University of Wooster; Gynecologist to the Cleveland Hospital for Women and Children; Consulting Gynecologist to the City Hospital; Member of the American Medical and Ohio State Medical Associations. 722 Woodland Avenue, Cleveland, Ohio.

1890.—ROSS, JAMES FREDERICK WILLIAM, M.D., L.R.C.P. (Eng.). Gynecologist to the Toronto General Hospital; Surgeon to the Woman's Hospital; Lecturer in Clinical Gynecology at the University of Toronto. *Executive Council*, 1892–1896. *President*, 1897. 481 Sherbourne Street, Toronto, Ont., Canada.

1901.—SCOTT, N. STONE, A.M., M.D. Professor of Surgery, College of Physicians and Surgeons, Cleveland; Consulting Surgeon to City Hospital; Consulting Surgeon to St. John's Hospital; Surgeon to the Out-patient Department of Cleveland General Hospital. 531 Prospect Avenue, Cleveland, Ohio.

1895.—SELLMAN, WILLIAM ALFRED BELT, M.D. Professor of the Diseases of Women and Children at the Baltimore University School of Medicine; Member of the Medical and Chirurgical Faculty of Maryland; also of the Baltimore Medical and Surgical Association; the Gynecological and Obstetrical Association of Baltimore; the

Clinical Society; the Baltimore Journal Club; the American Medical Association, etc. 5 East Biddle Street, Baltimore, Md.

1890.—SEXTON, JOHN CHASE, A.M., M.D. *Executive Council*, 1894. *Vice-president*, 1897. Rushville, Ind.

1889.—SEYMOUR, WILLIAM WOTKYNS, A.B., M.D. Surgeon to the Samaritan Hospital, Troy, N. Y.; formerly House Surgeon of the Boston City Hospital; Member of the American Medical Association; Fellow of the New York State Medical Association; Member of the British Medical Association. *Executive Council*, 1892–1893. 105 Third Street, Troy, N. Y.

1899.—SIMPSON, FRANK FARROW, A.B.. M.D. Assistant Gynecologist to Mercy Hospital. 524 Penn Avenue, Pittsburg, Pa.

1901.—SKEEL, ROLAND EDWARD, M.D. Professor of Obstetrics in Cleveland College of Physicians and Surgeons; Consulting Obstetrician to the City Hospital; Obstetrician to the Cleveland General Hospital. 140 Hollenden Street, Cleveland, Ohio.

1891.—SMITH, CHARLES NORTH, M.D. Professor of Obstetrics and Clinical Gynecology in the Toledo Medical College; Gynecologist to St. Vincent's Hospital. 234 Michigan Street, Toledo, Ohio.

1901.—STAMM, MARTIN, M.D. Professor of Operative and Clinical Surgery in the College of Physicians and Surgeons, Cleveland. 316 Napoleon Street, Fremont, Ohio.

1895.—STEELE, DANIEL ATKINSON KING, M.D. President and Professor of the Principles and Practice of Surgery at the College of Physicians and Surgeons; Attending Surgeon at the Chicago, Wesley, and Post-Graduate Hospitals; Consulting Surgeon at the Palmer Memorial Hospital, Janesville, Wis. 2920 Indiana Avenue, Chicago, Ill.

Founder.—*STORRS, MELANCTHON, A.M., M.D. Hartford, Conn. (See Honorary List, 1899.) 1900.

1894.—†STOVER, CHARLES, M.D. Amsterdam, N. Y. 1901.

1899.—SWOPE, LORENZO W., M.D. Surgeon to the Consolidated Traction Company; Assistant Surgeon to the West Pennsylvania Hospital. 3609 Forbes Street, Pittsburg, Pa.

1894.—†TAPPEY, ERNEST TAYLOR, A.M., M.D. Detroit, Mich. 1899.

1901.—TATE, MAGNUS ALFRED, M.D. Professor of Diseases of Children and Embryology at the Cincinnati College of Medicine and Surgery. 361 East Third Street, Cincinnati, Ohio.

1894.—†Taylor, Hugh McGuire, M.D. Richmond, Va. 1901.

Founder.—†Taylor, William Henry, M.D., Ph.D. Cincinnati, O. 1898.

1890.—Thomas, George Gillett, M.D. Ex-president Medical Society of the State of North Carolina. Wilmington, N. C.

1898.—†Thomas, Joseph Dio, M.D. Pittsburg, Pa. 1900.

1895.—Thompson, Frank Daniel, M.D. Professor of Gynecology in the Medical Department of Fort Worth University. 412 Adams Street, Fort Worth, Texas.

1895.—Tompkins, Christopher, M.D., Ph.D. Professor of Obstetrics and Dean of the Medical College of Virginia; Obstetrician to the Old Dominion Hospital; Member of the Southern Surgical and Gynecological Association. 116 East Franklin Street, Richmond, Virginia.

Founder.—*Townsend, Franklin, A.M., M.D. Albany, N. Y. 1895.

Founder.—Vander Veer, Albert, A.M., M.D., Ph.D. Professor of Didactic, Clinical, and Abdominal Surgery in the Albany Medical College; Attending Surgeon to the Albany Hospital; Consulting Surgeon to St. Peter's Hospital; Fellow of the American Surgical Association; Fellow of the British Gynecological Society; Member of the Southern Surgical and Gynecological Association; Corresponding Member of the Boston Gynecological Society. *Executive Council*, 1889–1891, 1895–1902. *President*, 1892. 28 Eagle Street, Albany, N. Y.

1891.—Walker, Edwin, M.D., Ph.D. Gynecologist to the Evansville City Hospital; President of the Indiana State Medical Society, 1892; Member of the American Medical Association and of the Mississippi Valley Medical Association; Member of the Southern Surgical and Gynecological Association. *Vice-president*, 1901. 712 Upper Fourth Street, Evansville, Ind.

1889.—Wenning, William Henry, A.M., M.D. Professor of Obstetrics in the Woman's Medical College; Gynecologist to St. Mary's Hospital. 722 Laurel Street, Cincinnati, Ohio.

Founder.—Werder, Xavier Oswald, M.D. Professor of Gynecology at the Western Pennsylvania Medical College (Medical Department, University of Western Pennsylvania); Consulting Gynecologist at the Allegheny General Hospital; Gynecologist to the Mercy Hos-

pital and Pittsburg Free Dispensary; Obstetrician to the Roselia Maternity Hospital; Consulting Gynecologist to St. Francis's Hospital; Consulting Surgeon to the South Side Hospital. *Treasurer*, 1888–1902. 524 Penn Avenue, Pittsburg, Pa.

1896.—WESTMORELAND, WILLIS FOREMAN, M.D.. Professor of Surgery at the Atlanta Medical College. Equitable Building, Atlanta, Georgia.

1895.—WHEATON, CHARLES AUGUSTUS, M.D. Professor of Clinical Surgery in the University of Minnesota. 301 Summit Avenue, St. Paul, Minn.

1897.—WHITBECK, JOHN W., M.D. Gynecologist to the Rochester City Hospital; Commissioner of the Board of Health. 322 East Avenue, Rochester, N. Y.

1897.—WILLIAMS, HENRY T., M.D. Attending Surgeon, City Hospital; Attending Surgeon, St. Mary's Hospital; Attending Surgeon, Monroe County Penitentiary; Consulting Surgeon to the Home for the Friendless. 274 Alexander Street, Rochester, N. Y.

1900.—ZINKE, ERNST GUSTAV, M.D. Professor of Obstetrics and Clinical Midwifery in the Medical College of Ohio, University of Cincinnati; Obstetrician and Gynecologist to the German Hospital; Obstetrician to the Maternity Hospital. 13 Garfield Place, Cincinnati, Ohio.

Total, one hundred and four Ordinary Fellows.

MINUTES OF THE PROCEEDINGS

AT THE

FOURTEENTH ANNUAL MEETING

OF THE

AMERICAN ASSOCIATION

OF

OBSTETRICIANS AND GYNECOLOGISTS,

HELD IN THE

BANQUET HALL OF THE HOTEL HOLLENDEN,

Cleveland, Ohio,

SEPTEMBER 17, 18 AND 19, 1901.

FOURTEENTH ANNUAL MEETING.

CLEVELAND, OHIO, SEPTEMBER 17, 18 AND 19, 1901.

The following-named Fellows were present:

BALDWIN, JAMES F.	COLUMBUS.
BLUME, FREDERICK	PITTSBURG.
CARSTENS, J. HENRY	DETROIT.
CUMSTON, CHARLES G.	BOSTON.
DAVIS, WILLIAM E. B.	BIRMINGHAM.
DORSETT, WALTER B.	ST. LOUIS.
DUNNING, LEHMAN H.	INDIANAPOLIS.
EASTMAN, THOMAS B.	INDIANAPOLIS.
FERGUSON, ALEX. HUGH	CHICAGO.
FREDERICK, CARLTON C.	BUFFALO.
GOLDSPOHN, ALBERT	CHICAGO.
HAYD, HERMAN E.	BUFFALO.
HUMISTON, WILLIAM H.	CLEVELAND.
HYDE, JOEL W.	BROOKLYN.
ILL, CHARLES L.	NEWARK.
ILL, EDWARD J.	NEWARK.
INGRAHAM, HENRY D.	BUFFALO.
JAYNE, WALTER A.	DENVER.
LANGFIT, WILLIAM S.	PITTSBURG.
LINCOLN, WALTER R.	CLEVELAND.
LINVILLE, MONTGOMERY	NEW CASTLE.
LONGYEAR, HOWARD W.	DETROIT.
LYONS, JOHN A.	CHICAGO.
McMURTRY, LEWIS S.	LOUISVILLE.
MACDONALD, WILLIS G.	ALBANY.
MANTON, WALTER P.	DETROIT.
MILLER, AARON B.	SYRACUSE.
MORRIS, ROBERT T.	NEW YORK.
PECK, GEORGE S.	YOUNGSTOWN.
PORTER, MILES F.	FORT WAYNE.
POTTER, WILLIAM W.	BUFFALO.
PRICE, JOSEPH	PHILADELPHIA.
RICKETTS, EDWIN	CINCINNATI.
ROSENWASSER, M.	CLEVELAND.
SCOTT, N. STONE	CLEVELAND.
SEXTON, JOHN C.	RUSHVILLE.
SIMPSON, FRANK F.	PITTSBURG.
SKEEL, ROLAND E.	CLEVELAND.
STAMM, MARTIN	FREMONT.

STOVER, CHARLES	AMSTERDAM.
WALKER, EDWIN	EVANSVILLE.
WERDER, XAVIER O.	PITTSBURG.
ZINKE, E. GUSTAV	CINCINNATI.

Letters or messages of regret were received from the following-named Fellows:

Honorary.—A. E. Cordes, Geneva; J. W. Ballantyne; J. McFadden Gaston, Atlanta; Max Sänger, Prague; W. A. Freund, Berlin; W. Japp Sinclair, Manchester.

Corresponding.—Oscar Buttner, Geneva; A. H. Wright, Toronto.

Ordinary.—David Barrow, Charles L. Bonifield, Walter B. Chase, A. P. Clarke, E. F. Fish, Jefferson D. Griffith, Rufus B. Hall, Henry Howitt, James T. Jelks, George Ben Johnston, Webb J. Kelly, John B. Murphy, W. H. Myers, Charles A. L. Reed, J. F. W. Ross, William Wotkyns Seymour, Christopher Tompkins, A. Vander Veer, and Charles A. Wheaton.

On recommendation of the Executive Council the following-named physicians were invited to attend the sessions and participate in the proceedings:

C. W. Ampt,	Cleveland.	T. B. McGee,	Cleveland.
J. H. Belt,	"	Eliza J. Merrick,	"
S. L. Bernstein,	"	W. H. Merriam,	"
H. C. Bliss,	"	Jesse M. Moore,	"
C. E. Briggs,	"	G. W. Morehouse,	"
H. J. Burdick,	"	Frank Oakley,	"
A. D. Campbell,	"	William O. Osborn,	"
O. B. Campbell,	"	A. C. Poe,	"
Martha A. Canfield,	"	Hunter H. Powell,	"
L. W. Childs,	"	H. W. Rogers,	"
Harold T. Clapp,	"	P. B. Roper,	"
F. S. Clark,	"	X. C. Scott,	"
J. E. Cook,	"	H. G. Sherman,	"
C. F. Dutton,	"	George Seeley Smith,	"
Charles G. Foote,	"	Walter G. Stern,	"
P. Max. Foshay,	"	Frank A. Stovering,	"
Martin Fredrichs,	"	J. J. Thomas,	"
Royce D. Fry,	"	Oscar G. Thomas,	"
Carl A. Hamann,	"	Lillian F. Towslee,	"
Elmira Hobbie,	"	L. B. Tuckerman,	"
George Holmes,	"	Justin M. Waugh,	"
C. F. Hoover,	"	Cullen F. Welty,	"
J. M. Ingersoll,	"	William E. Wirt,	"
S. W. Kelley,	"	James C. Wood,	"
W. A. Knowlton,	"	C. W. Wooldridge,	"
S. H. Large,	"	James P. Boyd,	Akron, O.
W. H. Lucas,	"	Theo. B. Breck,	Hudson, O.

George B. Broad,	Syracuse.	Hannah M. Graham,	Indianapolis.
E. G. Carpenter,	Columbus, O.	Wm. E. Ground,	West Superior, Wis.
J. A. Dickson,	Ashtabula, O.	E. M. Harrison,	Toledo.
Peter Donnelly,	Toledo.	A. W. Hill,	Glenville, O.
Arthur W. Elting,	Albany.	A. McFarlane,	Albany.
J. F. Fox,	Toledo.	H. C. Merker,	Akron, O.
F. T. Gamble,	Rochester, N. Y.	H. V. Shorgar,	Cincinnati.
William J. Gillette,	Toledo.	H. M. Simmons,	Baltimore.
E. A. Goodsell,	Norwalk, O.	John S. Wood,	Collingwood, O,

FIRST DAY.—*Tuesday, September 17th.*

Morning Session.—The Association was called to order by the President, Dr. W. E. B. Davis, of Birmingham, Alabama, at 9.30 A.M.

Dr. C. F. Hoover, of Cleveland, Ohio, delivered the following Address of Welcome on behalf of the local medical profession:

ADDRESS OF WELCOME.

MR. PRESIDENT AND FELLOWS OF THE AMERICAN ASSOCIATION OF OBSTETRICIANS AND GYNECOLOGISTS: Your local committee has asked me to say a few words of formal welcome to our city, and the reason assigned by the members of this committee in imposing this pleasant duty on me is the fact that I happen to be the presiding officer of one of the largest local medical societies here. Numerically, it is a strong society. We have an inherent respect for numbers in Cleveland, since the last census credits us as being the most successful enumerators in the State of Ohio—at least, some of our Cincinnati colleagues say that is the popular impression. (Laughter.) I trust you will find us interesting for other reasons than our numerical strength. I would call your attention to our hospitals, and ask you all to visit them. I would likewise direct your attention to our medical schools. I can assure you that wherever you go in visiting any of our institutions you will be cordially welcomed. I trust that your deliberations may contribute to your common profit as well as to the common profit of the medical profession. On behalf of the medical profession of Cleveland, therefore, I bid you a cordial and hearty welcome to our city. (Applause.)

RESPONSE BY THE PRESIDENT.

Dr. Hoover, I have great pleasure in expressing profound thanks for the cordial welcome which we have received. We have known of Cleveland's hospitality for a long time, and we were prepared for the reception given us. This great city is known not only as being the metropolis of Ohio, but as having made valuable contributions to medical science. Knowing the members of the medical profession here personally, we have come with the well-founded hope that we

shall find something to learn and much to enjoy. Ohio has contributed a great deal to that department of surgery and medicine to which we have devoted the best of our lives—abdominal surgery. It was in this State that Kimball did his pioneer work, which was remarkable in many particulars. But of this you are familiar.

Ohio today is in the minds of the world, not because of its greatness as a State and what it has contributed to medical literature or to science in any of its departments, but because it is the home and it is to be the last resting-place of our much-beloved and greatly-lamented President, who fully met the requirements of his high office. He was President of the North and South alike; he was ambitious for national supremacy, and he succeeded in expanding our power, not only beyond the seas, but he did even more than this in binding our domestic wounds and in healing internal estrangements. It may be well said that "In his death our nation mourns; the South is on its knees at his bier, and the whole world looks on a weeping, but united, country."

The remarks of the President were received with manifest deep interest by the Association.

Dr. William H. Humiston, Chairman of the Committee of Arrangements, made the following verbal report:

REPORT OF THE COMMITTEE OF ARRANGEMENTS.

Your Committee of Arrangements has taken great pleasure in arranging for this meeting. It is the first time the Association has met in Cleveland. We feel we have everything complete. We hope this room in which the sessions are to be held is large enough.

Your committee wishes to say that the annual dinner of the Association has been arranged for tomorrow (Wednesday) evening. We intend to make it, in large part, a memorial meeting, owing to the death of President McKinley, and we think the propriety of such a course will not be questioned. This will take place at 7.30 P.M.

The Cleveland Medical and Cuyahoga County Medical Societies have united in tendering the Association a smoker at this hotel after the evening session tonight. The profession of Cleveland will be invited to meet you in an informal way, and we hope to have a pleasant time.

We have in Cleveland several hospitals, as the Lakeside Hospital, St. Vincent's Charity Hospital, the Cleveland General Hospital, etc., which we will be glad to have you visit.

Papers were then read, as follows:

1. "An Interesting Case of Tubo-abdominal Pregnancy," by Dr. William H. Humiston, of Cleveland, Ohio.

2. "Ectopic Pregnancy in a Bicornute Uterus; Rupture in Third

Month; Operation; Recovery," with exhibition of specimen, by Dr. Miles F. Porter, of Fort Wayne, Indiana.

These two papers were discussed jointly, the discussion being opened by Dr. Ill, continued by Drs. Walker, Rosenwasser, Hayd, Carstens, Baldwin, Cumston, Ricketts, and closed by the essayists.

3. "A New Method of Opening the Abdomen in Gynecologic Surgery," by Dr. Charles Greene Cumston, of Boston, Mass.

Discussed by Drs. Ricketts and Carstens.

4. "Sarcoma of the Breast, with Report of Three Cases," by Dr. Edwin Ricketts, of Cincinnati, Ohio.

This paper was discussed by Drs. Cumston, Carstens, Humiston, Eastman (Thomas B.), Price, Zinke, Sexton, Hayd, Porter, Miller, Baldwin, and the discussion was closed by the essayist.

The Association then took a recess until 2.30 P.M.

Afternoon Session, 2.30 o'clock.

The President in the Chair.

The Secretary read a brief account of the case of President McKinley.

5. "Galvanism as a Remedy for Uterine Hemorrhage," by Dr. Edwin Walker, of Evansville, Indiana.

Discussed by Drs. Frederick, Hayd, Price, Carstens, and the discussion closed by the essayist.

6. "Retrodisplacements in Young Girls and Unmarried Women; their Frequency and Best Methods of Treatment," by Dr. Herman E. Hayd, of Buffalo, N. Y.

7. "A Method for Suspension of the Uterus," by Dr. Robert T. Morris, of New York, N. Y.

These two papers were discussed together. The discussion was opened by Dr. Ill, and continued by Drs. Macdonald, Frederick, Walker, Price, Carstens, Baldwin, Humiston, and the discussion was closed by the authors of the papers.

8. "Diseases and Injuries of the Cervix Uteri, and their Treatment," by Dr. Joel W. Hyde, of Brooklyn, N. Y.

Discussed by Drs. Rosenwasser, Price, Ill, Miller, Ricketts, and the discussion closed by the essayist.

On motion, the Association took a recess until 8 o'clock.

Evening Session, 8 o'clock.

The President in the Chair.

9. "The Mechanical or Combined Plastic and Mechanical Treatment of Retrodeviations of the Womb," by Dr. M. Rosenwasser, of Cleveland, Ohio.

Discussed by Drs. Ill, Goldspohn, Hayd, Price, Carstens, Morris, and the discussion closed by the essayist.

On motion, the Association adjourned until Wednesday, 9.30 A.M.

SECOND DAY.—*Wednesday, September 18th.*

Morning Session, 9.30 *o'clock.*—The President in the Chair.

10. "Some Observations on the Surgery of the Spleen," by Dr. Lewis S. McMurtry, of Louisville, Ky.

Discussed by Drs. Baldwin, Cumston, Dunning, Carstens, Dorsett, Goldspohn, Frederick, Ricketts, Lyons, and, in closing, by the essayist.

11. "Is Cesarean Section Justifiable in Placenta Previa?" by Dr. E. Gustav Zinke, of Cincinnati, Ohio.

The discussion was opened by Dr. William J. Gillette, of Toledo, Ohio, by invitation, and continued by Drs. Carstens, Ill, Price, Cumston, Baldwin, Blume, Humiston, Powell (by invitation), Goldspohn, Ricketts, and the discussion was closed by the essayist.

12. President's Address. "Surgical Treatment of Biliary Calculi, with Special Reference to Hepatotomy," by Dr. W. E. B. Davis, of Birmingham, Alabama.

On motion of Dr. McMurtry, a vote of thanks was tendered to the President for his very able address.

On motion, the Association took a recess until 2.30 o'clock.

Afternoon Session, 2.30 *o'clock.*

The President in the Chair.

13. "Gallstones in the Common Duct; Remarks upon the Frequency, Diagnosis, and Treatment," by Dr. L. H. Dunning, of Indianapolis, Indiana.

Discussed by Drs. Ricketts, Werder, Porter, Stamm, Macdonald, and, in closing, by the essayist.

14. "Extrauterine Pregnancy, with Report of Cases and Presentation of Specimens," by Dr. George S. Peck, of Youngstown, Ohio.

Discussed by Drs. Longyear, Hayd, Dorsett, Zinke, Frederick, Porter, Dunning, Goldspohn, Baldwin, McMurtry, Price, Macdonald, Rosenwasser, and the discussion closed by the essayist.

15. "Papilloma of the Vulva," by Dr. Edward J. Ill, of Newark, N. J.

16. "Early Operations in Appendicitis, and Method," by Dr. Joseph Price, of Philadelphia, Pa.

Discussed by Drs. Lyons, Cumston, McMurtry, Baldwin, Goldspohn, Carstens, Porter, Ricketts, Frederick, and the discussion closed by the essayist.

On motion, the Association adjourned until Thursday, 9.30 A.M.

THIRD DAY.—*Thursday, September 19th.*

Morning Session, 9.30 *o'clock.*—The President in the Chair.

17. "Vaginal Hysterectomy, with Four and a Half Months' Pregnancy and Closed Cervix," by Dr. J. Henry Carstens, of Detroit, Michigan.

Discussed by Dr. Price, and the discussion closed by the essayist.

18. "Tubal Pregnancy; Case Operated in the Eighth Week, Immediately Before the Occurrence of Rupture," by Dr. M. Rosenwasser, of Cleveland, Ohio.

Discussed by Drs. Frederick and Ricketts, and the discussion closed by the essayist.

19. "Indications, Technic, and Remote Results of Salpingostomy and of Resection and Ignipuncture of the Ovaries, with Table of One Hundred and Four Cases," by Dr. A. Goldspohn, of Chicago.

Discussed by Drs. Frederick, Ricketts, Cumston, and the discussion closed by the essayist.

20. "Some Rare and Odd Cases and Experiences in Pelvic and Abdominal Surgery, and the Lessons they Teach," by Dr. C. C. Frederick, of Buffalo, N. Y.

Discussed by Drs. McMurtry, Rosenwasser, Cumston, Scott, and the discussion closed by the author of the paper.

21. "Pathology and Treatment of Hour-glass Stomach, with Report of Two Cases," by Dr. Charles Greene Cumston, of Boston, Mass.

Discussed by Drs. Scott, Goldspohn, Tuckerman, and the discussion closed by the essayist.

22. "Personal Experience with Uterine Fibroids," by Dr. Henry D. Ingraham, of Buffalo, N. Y.

Discussed by Drs. Walker, Simpson, and Ill, and the discussion closed by the essayist.

Dr. Hyde offered the following resolutions:

Resolved, That the thanks of the American Association of Obstetricians and Gynecologists be and are hereby tendered to—

1. The members of the Committee of Arrangements, Drs. Rosenwasser and Humiston, of Cleveland, for the excellent manner in which they have provided for the business and social features of the Fourteenth Annual Meeting, thereby materially contributing to make it one of the largest and best the Association has ever held.

2. To the medical profession of the city of Cleveland and vicinity for the uniform courtesy extended to the Fellows, and for their conspicuously large attendance upon the scientific sessions of the Association.

3. To the Medical Association of Cuyahoga County for the "smoker" of Tuesday evening, which was an occasion of unusual interest and pleasure to the Fellows of the Association.

4. To the Manager of the Hotel Hollenden and his efficient staff, for many courtesies and attentions in spite of the difficulties consequent upon an overcrowded house, but especially for a good meeting-room and the finely-appointed, well-served annual dinner.

On motion of Dr. Walker, the resolutions were unanimously adopted.

The President appointed Dr. Walker to escort the newly-elected President to the Chair.

The retiring President, Dr. Davis, in presenting his successor, said: We are approaching the close of one of the most successful meetings in the history of the Association. I believe it is admitted by all that we have never had a better meeting than this one. We shall soon be returning to our homes, and I am sure that we are going to be more in love with our Association and its Fellows than ever before, if such a thing is possible. It affords me very great pleasure to introduce our newly-elected President. He has been one of our most enthusiastic and indefatigable workers. The Association is to be congratulated on having selected one so worthy to fill this high office. Dr. Ricketts will now take the Chair. (Loud applause.)

Dr. Ricketts, in accepting the Presidency, said: Gentlemen, I appreciate the distinguished honor that you have conferred upon me in making me the President of this Association—an Association second to none in this or any other country. To be able to preside over the deliberations of this body is not a small task, for the reason that those who read papers and discuss them know what they are talking about. There are no amateurs among us. Our TRANSACTIONS go out among general practitioners and specialists of this and other countries. They are eagerly sought for. They are read with great interest and avidity.

This has been, as our President has well said, the most successful meeting that we have ever held. I do not want you, however, to relax your energies or your desires to push along the work of this Association. We have added to our members here at this meeting. We have taken in gentlemen of world-wide reputation, men who stand out in bold relief in obstetric, gynecologic, and abdominal work. I trust that we shall accomplish even more work in the future than we have in the past.

There is one thing to which I desire to call your attention briefly in connection with the workings of this Association, and that is the discussions. They are spirited and pointed. They do not convey any ill feeling. It is true, a little humor is thrown in occasionally to make the proceedings more interesting and lively. This Association has won for itself a name of which we may all feel proud. It has among its Fellows men who have won great distinction and renown in their particular lines of work.

I am proud to have this great honor bestowed upon me. I have been one of the willing workers, and I am ever ready to work in the interests of the Association. Let us not slacken our energies. Let us push on with vim and vigor, and continue to have our work recognized as it has been.

I want to say to you, Dr. Davis, as the retiring officer of this Association, that you have ruled and ruled well. There have been no dissensions in this meeting; there has been unanimity of action, and this has been brought about very largely by your good and wise management. We are proud to own you as a Fellow of this Association, a man who is foremost in his work in the specialty of abdominal surgery and gynecology.

Gentlemen, permit me to again thank you for the great honor you have conferred on me. (Applause.)

On motion, the Association then adjourned, to meet in Washington, D. C., at the call of the Executive Council. The date was afterward fixed as September 16, 17 and 18, 1902.

WILLIAM WARREN POTTER,
Secretary.

EXECUTIVE SESSIONS.

Tuesday, September 17, 1901.

The President, Dr. W. E. B. Davis, in the Chair.

On behalf of the Executive Council, the Secretary presented a list of candidates for Fellowship, and the Association then elected by ballot the following-named candidates:

Dr. Clifton Rogers Dudley, St. Louis, Mo.; Dr. George W. Crile, Cleveland, Ohio; Dr. Charles L. Ill, Newark, N. J.; Dr. Walter R. Lincoln, Cleveland, Ohio; Dr. N. Stone Scott, Cleveland, Ohio; Dr. M. Stamm, Fremont, Ohio; Dr. R. J. Skeel, Cleveland, Ohio; Dr. William A. McCandless, St. Louis, Mo., and Dr. Magnus A. Tate, Cincinnati, Ohio. Honorary Fellow, Dr. G. C. Weber, of Willoughby, Ohio.

The Secretary, on behalf of the Executive Council, submitted a list containing seventy-two names of the medical profession of Cleveland and other towns, who were nominated by the Committee of Arrangements and invited to participate in the proceedings as members by invitation.

On motion of Dr. Walker, the gentlemen whose names were submitted were made members by invitation.

The Secretary read a number of letters and telegrams of regret from absent Fellows. He also read a telegram from Dr. William Japp Sinclair, of Manchester, England, who was in Denver, and regretted his inability to reach Cleveland in time for the meeting.

The Secretary read a communication from Dr. W. A. Freund, and said that, if the Association thought best, he would say to this distinguished gentleman that the members of the Association would be glad to receive the paper on "Carcinoma Uteri" mentioned in his letter. This was so ordered.

The Secretary said that the accounts of the Secretary and Treasurer were ready to be audited.

The President appointed as an Auditing Committee Drs. Sexton and Cumston.

Adjourned.

Wednesday, September 18, 1901.

The Executive Session was called to order by the President at 7 P.M.

The first order was the following amendment to the Constitution: *Resolved*, That the name of this Association shall be "The American Society of Abdominal Surgeons."

In order to bring the matter properly before the Association, Dr. Baldwin moved the adoption of the amendment. Seconded.

After considerable discussion, which was participated in by Drs. Carstens, McMurtry, Baldwin, Dorsett, Goldspohn, and Dunning, the President put the amendment, and it was lost.

The Association then proceeded to elect officers for the ensuing year, with the following result:

President—Dr. Edwin Ricketts, Cincinnati, Ohio. *Vice-presidents*—Drs. Charles Greene Cumston, Boston, Mass., and Miles F. Porter, Fort Wayne, Indiana. *Secretary*—Dr. William Warren Potter (re-elected), Buffalo, N. Y. *Treasurer*—Dr. X. O. Werder (re-elected), Pittsburg, Pa.

To fill the three vacancies in the Executive Council, Drs. Dunning and Chase were re-elected, and Dr. Humiston was elected to succeed Dr. Ricketts.

Place of meeting, Washington, D. C., 1902. Time to be fixed by the Executive Council.

Dr. Carstens offered the following amendment to the Constitution, under the head of "Members:"

Resolved, That one hundred and twenty-five be stricken out and other figures be put in their place. (To lie over one year.)

Dr. Carstens stated that there was a strong feeling on the part of some members of the Association and of the Southern Surgical and Gynecological Association to bring about a union of the two societies. He, therefore, moved that a committee of three be appointed by the President to consider this matter and bring in a report at the next annual meeting as to its feasibility, and to confer with members of a like committee from the other Association. Carried.

Dr. Carstens moved that the President, Dr. Davis, be made a member of this committee. Carried.

As the two other members of the committee, the President appointed Drs. Dunning and Carstens.

The Secretary announced that the Auditing Committee had examined the accounts of the Secretary and Treasurer, and had found them correct, with a balance of $100.18 in the treasury.

On motion, the report was adopted.

There being no further business, the Executive Session adjourned.

WILLIAM WARREN POTTER,
Secretary

PAPERS

READ AT THE

FOURTEENTH ANNUAL MEETING

OF THE

AMERICAN ASSOCIATION

OF

OBSTETRICIANS AND GYNECOLOGISTS,

HELD IN THE

BANQUET HALL OF THE HOTEL HOLLENDEN,

Cleveland, Ohio,

SEPTEMBER 17, 18 AND 19, 1901.

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PRESIDENT'S ADDRESS.

THE SURGICAL TREATMENT OF BILIARY CALCULI, WITH SPECIAL REFERENCE TO HEPATOTOMY.

By W. E. B. DAVIS, M.D.,
BIRMINGHAM.

Introduction.

For the distinguished honor conferred on me at our last meeting in my election to the Presidency of this Association, numbering among its members so many leaders in gynecology and abdominal surgery, I beg, first of all, to return my most profound thanks. The Association occupies a unique position among our national special societies. It has overcome difficulties and accomplished results scarcely equalled and not excelled by any other special organization in this country. Its foundation was a necessity, it being admitted even by the members of the American Gynecological Society that that society was not sufficiently representative. Dr. Marion Sims, who in 1880, in his presidential address, urged the increase of the limit of membership from 60 to 100, which was done in 1884, said: "It is not to be denied that there is a very large element of discontent among men who are our equals in everything, and who might be organized into a formidable rival national association." Dr. Theophilus Parvin, in his address in 1893, made this statement: "These words"—Dr. Sims'—"were prophetic, the prophecy is history, and there is a formidable rival national association. The Association numbers many able members, and has done very creditable and useful work." It was after our Association was established and its success assured that the Gynecological Society began a general and active canvass for

Fellows, and increased its membership from 58 to 94. Its Fellows were able men—leaders, as a rule—and as a society it gave prestige to American gynecology; but there were many of their peers who had not been encouraged to become members, and, on the contrary, a number of distinguished and able workers had been denied this privilege.

The following from the presidential address of Dr. Robert Battey, in 1888, testifies to the above: "In the past, America has been, in a sense, the home of gynecology. To-day no country can boast of so large a number of intelligent workers in this department of the healing art. In our vast country the number of medical practitioners who devote themselves exclusively to gynecology is quite large, while those who make it a leading pursuit are to be counted by the thousands. Surely out of this army of gynecologic specialists one hundred men can be found who might worthily occupy places as working Fellows in this society. Why is it, then, that our seats remain year by year scarcely more than half-filled? When I say to you in all sincerity that if I myself were to-day outside instead of inside the ranks, distrust would forever bar me from becoming an applicant at your doors except upon special invitation, I can but feel that I am verging toward the true explanation of our forty-two vacant chairs. Diligent workers in medical science are, with an occasional exception which but proves the rule, modest gentlemen, not at all inclined to push themselves where they are not wanted. It is this class of members which we especially desire, and it is this class, too, who are least likely to make application for the Fellowship without some advance on our part which would give probable assurance of welcome."

It was natural for some men who were invited to come into our Association to prefer the older and well-established organization, hallowed by the names of so many of our distinguished countrymen, and also for a number of our members to go into that society. The great majority, however, preferred the new organization, projected on a broader plane, and would not yield to inducements to give it up, and, as a result, this society has increased in number and influence, and no one can deny that it is a representative American association of our foremost gynecologists and abdominal surgeons. Its thirteen volumes of

TRANSACTIONS are in every way highly creditable to American gynecology. They are not excelled by the published work of any other American society, and reflect the greatest credit upon our members and especially the ability of our scholarly Secretary, to whom we owe so much for the present high position this organization occupies. He has been its sculptor, and in the language of our first president, Dr. Taylor, "Upon the obelisk of the Association erected by the earnest work of its members there will stand in imperishable letters the name of William Warren Potter." I wish that time would permit my mentioning the names of those noble, earnest workers who joined Drs. Potter and Vander Veer in projecting and establishing this great Association.

The Association's first president, who served a second term, closed his last address in these words: "The recent advancement in all departments of science and the wonderful practical application of newly acquired facts disarm incredulity, and we dare place no limit upon the possible acquisitions of the near future. The Utopias of to-day may be the familiar dwelling-places of to-morrow; and, actuated by the noble sentiment which so characterizes our profession—of seeking the truth for the truth's sake—we may be sure of grand additions to our knowledge and skill, and I can utter no better benediction than the hope that this Association may bear its full share of making these acquisitions." To-day I am able to state with much pride that many of the mooted questions in abdominal and pelvic surgery have been made clearer by our Fellows, and that they have added materially to our store of knowledge.

The need of specialism in the profession and of special societies for the promotion of the several specialties have been ably and most exhaustively treated by our foremost men. The national special societies have wielded a wonderful influence in the profession and have added greatly to our reputation abroad. Our medical literature has been enhanced in every way through them. They have been incentives to higher aims and better work in all departments. As individual societies they should be encouraged, but their union into a national congress or association is not conducive to the best interests of the American profession. The greatest and most influential organization of the United States should be the American Medical Association. Both the special-

ists and the general practitioners of this country should belong to that Association, and take pride in their membership and exert their best energies in behalf of its meetings, as urged by our Fellow, Dr. Wright. Many of our ablest men, as claimed by him, have been conspicuous by their absence. Failure to be an active contributor to the work of this national organization should be a justly deserved reflection on a prominent physician, whether he be a general practitioner or a specialist. Several years ago there was some reason for the want of interest in the organization, as there was too much politics and too little scientific work. However, for the past few years the scientific work of the Sections has been of a high order, and a great deal has been accomplished in the time allowed. With the adoption of the new organization providing for the House of Delegates to take charge of all business matters and questions of a judicial or personal nature more time will be provided for scientific work, the Sections having as many sessions as provided for the meetings of our national special societies. The special societies, composed as they are of leaders in the several specialties, are under obligations to the American profession to assist in the better organization of these Sections. Many of the members of these societies are officers and active working members of the Sections of the American Medical Association, and can accomplish this result. There must be one class of membership for the Section that can be held by only those who are recognized as teachers and leaders, in order to make membership very desirable and sought after. I would suggest that this class be known as Fellows, and that they pay, in addition to the annual dues of the Association, $5 annually for Section dues, which fund should be expended in the publication of the proceedings of the Section. The officers and authors of papers should come from the Fellows. All members would have the privilege of taking part in the discussions, and thus an opportunity would be provided for the ordinary or Association members to show themselves worthy of fellowship. Such organization of the Sections, with volumes of transactions, publishing a list of the Fellows, would give stability and a permanency to the Section work that could scarcely be had in any other way. With the House of Delegates for the general Association and the roll of Fellows and Association members for each of the Sections, we would become the most

scientific and influential medical organization the world has ever known.

The American Association of Obstetricians and Gynecologists has it in its power to so organize the Section of Diseases of Women, and the members of this Section, I believe, could induce the leaders in the other Sections to adopt the plan outlined or something after that plan. It is not enough that we should succeed as specialists and that our special societies should succeed, but they should prove a source of strength to the entire profession which can be best subserved by strengthening the American Medical Association, making it not only a power in scientific work, but giving it the prestige which will enable scientific medicine to receive due recognition from our National Government. If our Fellows accomplish as much they will have rendered the medical profession an invaluable service.

I now come to the subject which I have selected for discussion:

The Surgical Treatment of Biliary Calculi, with Special Reference to Hepatotomy.

Biliary calculi being found in from 2 to 20 per cent. of autopsies, the frequency increasing with age, makes the subject one of vast importance. Cases are now quite properly studied according to the location of stones and the resultant pathologic conditions. In every case, if the diagnosis could be made, the stones should be removed, in view of the multiform changes they are capable of producing. Fortunately for the patient, in a large proportion no trouble or symptoms ever occur; hence the diagnosis during life could be made only by an abdominal section, as the X-ray is not capable of demonstrating their presence except in a very small per cent. of cases.

The correct surgical management of gall-bladder and cystic-duct calculi was first planned and put into practice in 1878 by that surgical genius from Alabama who did so much to advance gynecology—the immortal Marion Sims. There has been little improvement on his original operation. Bobbs, of Indiana, in 1867, opened a gall-bladder containing calculi, but it had become attached to the abdominal parietes, and his operation was nothing more than the incision of a simple abscess, as has been conclu-

sively shown by Joseph Eastman. Cholecystostomy, with the attachment of the walls of the gall-bladder to the peritoneum and deep fascia of the abdominal wound, is ideal and attended by less than 1 per cent. mortality. Only a small per cent. of fistulæ will follow this technic, while 40 per cent. has been the result of attaching the gall-bladder to the skin.

Much has been claimed within the past five years for cholecystendysis, with or without drainage of the abdominal cavity. While this operation has something to commend it, being simple and obviating the disagreeable discharge of bile, for from three to four weeks, from a fistula, yet its field is limited when the etiology and pathology of cholelithiasis are given due consideration. Stagnation of bile, with altered epithelium and infection from the typhoid or colon bacillus, as found in many cases where there is no evidence of infection from the character of the fluid in the bladder, would contraindicate its closure. If stones should be found where an examination of the gall-bladder is conducted through the abdominal incision made for the relief of pelvic disease or other abdominal trouble, cholecystendysis might be performed with advantage. I would advise strongly against the operation as performed by Kelly. The first incision in the abdomen should be closed and the opening made as in the classic cholecystotomy. Cases in which calculi would be found by this method are not associated with inflammatory changes, and are the ones that go through life without symptoms referable to the gall-bladder, being found at the autopsy or in the dissecting-room.

Cholecystectomy—first recommended in 1882 by Langenbuch—is indicated in gangrene of the gall-bladder, multiple or perforating ulcers, stricture of cystic duct, phlegmonous cholecystitis, empyema, with great danger to the walls of the viscus, and malignant disease. It should not be done, as a rule, in chronic cholecystitis, when the bladder is too small to attach to the abdominal wall, notwithstanding it is recommended by Robson and others. Drainage with tube and gauze is to be preferred. It should never be completed until the common duct has been thoroughly explored and found to be patent. In the majority of cases it is advisable to trim off the diseased portion of the bladder from the liver instead of removing the entire viscus, and drain with gauze. The mortality of this operation is from 3 to 25 per cent., according

to the condition. Being called for in serious inflammatory and malignant diseases makes its mortality larger than cholecystostomy.

On November 25 of last year Hans Kehr[1] had performed 547 gallstone operations, with the following results: 204 conservative operations on the gall-bladder (cystostomies, cystotomies, cystendyses), with 4 deaths; 121 cystectomies, with 4 fatal cases; and 97 choledochotomies, with 6 deaths. The mortality was 47 per cent. in gallstone diseases complicated with carcinoma of the liver, of the gall-bladder, of the choledochus, or the pancreas, or if there existed diffuse purulent cholangitis, peritonitis, or cirrhosis of the liver.

Since 1890 the surgery of the common duct has attracted wide attention. Schloth in 343 cases of biliary calculi found 2.6 per cent. in the duct. Fenger estimates that from 2.6 to 15 per cent. of cholelithiasis are choledochus cases. Mayo Robson thinks from a surgical standpoint 20 per cent. would not be too large an estimate, which corresponds with Kehr's experience. At the Indianapolis meeting of this Association, Dr. Joseph Eastman, of Indianapolis, stated that he had operated on thirty-three cases of cholelithiasis and had never found a stone in the common duct, and rather questioned the reported cases of others. I replied to him that he would probably find one in his next operation, as some surgeons reported less than 3 per cent. in the duct. Three days after I returned to my home I was called to a woman, from Indianapolis, who had been having for years attacks of recurring pain in the epigastrium extending to the lumbar and lower dorsal region, with rigors and fever, followed by tenderness over the liver. She had slight jaundice, which deepened at the time of attacks—clearly a case of movable choledochus stone. Her Indianapolis physician had made the diagnosis of stone in the duct, but the patient had declined to consult a surgeon at that time.

Courvoisier estimates that in two-thirds of the cases there is but one stone. Mayo Robson's experience shows a much larger proportion of multiple calculi in the duct. In about two-thirds of the cases the stone is in the duodenal end of the duct, and of the remaining third the stones are divided about equally between

[1] Prof. Kehr's introduction to the American translation of his book on Gallstone Diseases.

the hepatic and middle portions of the duct. Fenger's valuable studies on movable choledochus stone have been extremely helpful.

In a small per cent. only of cases can the stone be pressed from the duct into the duodenum or manipulated into the gall-bladder, but this should be attempted when it seems at all possible—especially where the gall-bladder has been opened and after the stones have been removed from the bladder and the cystic duct.

Choledochotomy *without suture* is called for in the large majority of common duct stones. Suture of the duct may be practised in the absence of marked cholangitis, if the patient's condition has not been rendered serious by much suffering and protracted jaundice and if the duct is enlarged. Gauze drainage should be resorted to in all cases, it matters not how carefully the stitching of the duct has been carried out. The time required for suturing the duct adds very greatly to the gravity of the operation in cholemia of long duration, and it would be contrary to surgical practice elsewhere to suture when "offensive, muddy bile" escapes from the duct. Kehr refers to several cases which recovered after the giving way of the duct sutures when death seemed imminent before the offensive discharge appeared. When there are extensive adhesions in the locality of the duct the wound in the choledochus should be left open and gauze used, even though the patient's general condition would warrant a protracted operation in order to relieve the cholangitis, which may extend if the duct is closed. Kehr insists that the surgeon must be guided by the pathologic condition as to suturing or draining. He says tampon in all cases, "but never suture if the bile is muddy and cholangitic symptoms have preceded." Morrison's pouch, which will hold nearly a pint of fluid, makes drainage in this location entirely satisfactory. The lumbar stab is preferred by some surgeons, but the entire safety of transperitoneal drainage has been abundantly demonstrated.

Unquestionably choledochotomy *with suture* is being more and more supplanted by the open treatment of the duct, and the mortality is being correspondingly lowered. Kehr, who has done more gallstone operations than any other surgeon, claims that he first advised the open treatment of the duct; but we know that he is in error, as the operation has been advocated in this country

since the early part of 1892, at which time experiments were conducted by me on lower animals and reported to the American Medical Association. At that time and for some years afterward it was admitted by surgeons that the operation would succeed on normal organs with normal bile, but not otherwise. I afterward induced pathologic changes in the biliary passages, and demonstrated that the operation was successful in infected cases. Experimental and clinical experience demonstrates conclusively the safety of the operation.

Courvoisier is credited with the first choledochotomy, which was done in 1890, the duct being sutured. Marcy, however, reports a case in which he sutured the duct in 1889. For a few years after this in a limited number of cases where the duct was inaccessible, or where it was found impracticable to suture, it was drained, but the operation was regarded as being very incomplete and unsatisfactory. McBurney was the first to advocate the removal of stones impacted in the duodenal portion of the duct through incision in the duodenum.

Kehr's record of 97 choledochotomies with 6 deaths is remarkable, and is due to his having drained in extreme exhaustion and cholemia and where there was marked cholangitis. Much of his success, he claims, is due to his great experience in operating, which has enabled him to better master the technique. He says he now does choledochotomies in a half-hour which formerly required two or three hours. As but few operators can have this great clinical experience with gallstone disease, I would advise those who only occasionally operate for cholelithiasis to induce pathologic changes in the biliary reservoir and passages in dogs, and by operative procedures to correct them. Dexterity in operating and greater familiarity with this class of surgery may be had in this way.

At the Indianapolis meeting, two years ago, I reported two cases in which hepatotomy had been done in obstruction to the biliary passages, and at the Pan-American Medical Congress, in Havana, presented the abstract of a paper on this subject. The operation is indicated in cases of obstruction, with enlarged liver, where the gall-bladder or ducts cannot be isolated, or the patient's condition, from exhaustion and cholemia, will not permit of a protracted search for the bladder or ducts. It will be only excep-

tionally called for, and the cases will be fewer as the surgeon's experience increases in choledochus operations. He will then be enabled to better locate the bladder and ducts, so much changed by inflammatory processes. After the patient has been relieved of cholemia by the escape of bile from the incision in the liver, an operation with less danger may be done for the removal of the obstruction in the duct. In addition to the above indications, I think the operation should be resorted to in hepatitis before it has reached the stage of pus formation, if the liver does not rapidly become smaller after drainage of the biliary reservoir or the ducts. My attention was first attracted to the value of the procedure in a case in which the amount of pus removed was not more than one-half an ounce, but in which the division of the biliary canals resulted in the escape of large quantities of bile for many weeks.

The patient was seized with violent pain over the region of the gall-bladder, and required a hypodermic of morphin, ¼ grain, before being relieved.[1] The liver was tender, and extended an inch and a half below the margin of the ribs. The skin was slightly discolored. There was nausea and some vomiting. The temperature was 102° F. in the afternoon; on the next day 99.5° F. in the morning and 100.5° F. in the afternoon. The pulse was less than 100. The daily temperature remained the same for a week, everything pointing to an abscess of the liver. On October 28, 1898, one week after the attack, the abdomen was opened and the right lobe of the liver aspirated, not more than one-half an ounce of pus being removed. I made an incision and with the finger searched for this small cavity; in so doing a wound of considerable depth and great size, perhaps two inches in length, was produced. There was very profuse hemorrhage, which was controlled by iodoform gauze packing. The liver tissue gave way under the packing, making the wound much larger. The patient stood the operation well. A large quantity of bile was discharged through the gauze, necessitating the frequent change of dressings. The bile continued to pass in large quantities for three weeks and in small quantities for another two weeks—about the amount usually discharged in a case of cholecystotomy. The liver rapidly decreased in size, and the

[1] "Wounds of the Liver and Biliary Tract," Transactions of the American Association of Obstetricians and Gynecologists, vol. xii.

patient is in better condition now than for several years. The extensive wound of the liver evidently assisted in his recovery by severing the small biliary canals and emptying the liver.

I did a hepatotomy on the following case with choledochus stone:[1] Mrs. S., of Shelby County, aged twenty-eight years, consulted me in December, 1898. She had suffered from attacks of epigastric pain and fever for four months. There was some tenderness elicited by pressure over the liver, the margin of which extended to midway between the ribs and umbilicus. There was no enlargement of the gall-bladder. Several attacks of pain would occur in a day or a week, coupled with slight jaundice. There would be nausea and some vomiting. The chills and fever simulated malaria. The diagnosis of a stone, loose in the common duct, was made. Operation was advised as soon as the present attack was over. In a few days, however, she was seized with a violent pain in the right hypochondriac region, with fast pulse, 130 to 140, temperature 103° F., and vomiting. The peritonitis was localized. It was decided to perform a drainage operation to bridge the patient over, and subsequently the operation to remove the stone. There were extensive adhesions to the under surface of the liver, which were partly separated. There was no pus around the liver, but great bleeding occurred, which was controlled by gauze packing. The right lobe of the liver was aspirated, and it was thought that some pus was removed, but a more thorough examination showed that this was incorrect. Free incision was made in the right lobe, which was followed by considerable bleeding. Iodoform gauze was packed in the liver wound. There was considerable discharge, for some days, of a dark, bloody fluid; not a great deal of bile. The liver returned to its normal size in a few weeks, but there were occasional recurrences of epigastric and subscapular pain, with fever, showing that the stone was still in the duct. The spleen became very much enlarged four months after the operation. About two months later, when the patient had decided to have the radical operation for the removal of the stone, it was passed. Patient was entirely relieved.

Hepatotomy was done in the following case[2] for the relief of

[1] "Wounds of the Liver and Biliary Tract," Transactions of the American Association of Obstetricians and Gynecologists, vol. xii.

[2] Ibid.

cholemia in obstruction of hepatic ducts: Mrs. H., of St. Clair County, was referred to me by Dr. J. W. Ash, Springville, Ala., December, 1898. The patient was aged sixty years. Six weeks previously, without great pain, she rapidly became jaundiced. The jaundice gradually became more intense. The liver extended almost to the umbilicus. There were no nodules to be made out. The patient's condition was extremely unpromising, and no encouragement was given the family. An exploratory operation was done December 31st, and the gall-bladder was found empty and quite white. No stone could be made out in the common duct. A thorough investigation of the under surface of the liver was not made, owing to the very critical condition of the patient and the size of the liver. However, it was evident that the obstruction was in the hepatic duct or its branches. The bladder was attached to the abdominal incision more to anchor the liver than otherwise. An incision was made in the right lobe, and the bleeding was free, but was controlled by iodoform gauze packing. The patient lived five days, and died from exhaustion. I had hoped to sever some of the biliary canals and thus drain the liver until the patient was somewhat relieved of cholemia. There was a free discharge of very dark-colored bile. The autopsy revealed a large, malignant nodule in the transverse fissure, which completely obstructed the branches of the hepatic duct. The biliary canals throughout the liver were very much distended.

In July and August of this year, 1901, I conducted a number of experiments on dogs to determine the value of incisions in the liver in relieving biliary obstruction.[1] Five dogs were killed and the liver injected with fluid either through the gall-ladder, the common duct having been tied, or through the common duct. Incisions were then made in all parts of the liver, with the result that streams of the fluid would issue from the bile canals, and there was general oozing of the fluid from the wounded surfaces of the organ if much force were used. Six dogs were anesthetized and the liver injected as above, and this fluid with blood would flow, as a rule, freely when much force was used in injecting the fluid. Four had the common duct tied, and after twenty-

[1] Experiments were conducted at the Birmingham Medical College, and I was assisted by Dr. R. E. Hogan, Assistant Professor of Gynecology and Abdominal Surgery.

four hours the same experiment was conducted under anesthesia, with similar results. In nine the common duct was ligated and gauze packed around the field of the gall-bladder and ducts. After from twenty-four hours to a week the liver would be incised in one or more places, and as a rule the bile escaped satisfactorily through the gauze. It would be very dark after prolonged obstruction. Two of the dogs died, and the others were killed in from five days to two weeks after the second operation. Before killing them, and while under the anesthetic, fluid was injected through the bladder or duct, and would flow from the wounds which had been made in the liver at the second operation, and also from incisions made at that time. Five had the gall-bladder removed and cystic and common ducts ligated; but as gauze was not used at the time of the operation to wall off the general cavity, they died in from twenty-four to forty-eight hours from shock and from the escape of bile.

Other experiments were conducted, but they added nothing to the above. While, as I have stated, the field for hepatotomy in gallstone diseases is very restricted, yet in those few cases it offers the surgeon much assistance in bridging the patient over until in better condition for a radical operation.

As we advance in the surgery of the ducts the field for cholecystenterostomy grows smaller. Certainly it should not be done, leaving a stone in the duct. Malignant disease and agglutination of the duct call for it. The Murphy button makes the operation quite simple.

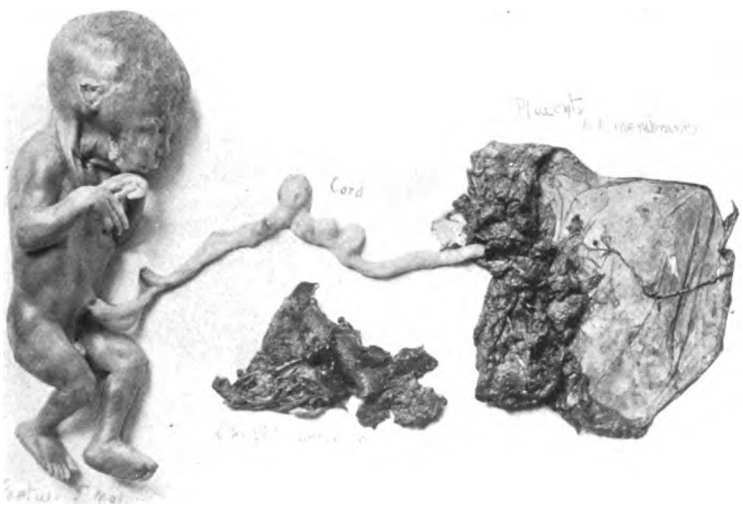
AN INTERESTING CASE OF TUBOABDOMINAL PREGNANCY.

By WILLIAM H. HUMISTON, M.D.,
CLEVELAND.

L. J., aged thirty-four years, had been married sixteen years and had given birth to two children, the youngest being eight years old. She had had two miscarriages prior to the birth of the last child. Her early menstrual history shows no divergence from the normal. In later years she had been troubled with dysmenorrhea and pain in the left ovarian region, but her general condition has been excellent.

The last normal menstrual period began on January 18, 1901, and continued throughout the usual length of time, without any deviation from the course of previous epochs. There was no appearance of the menses either in February or March, but a week after the expected period of the latter month the patient "took something." For ten days there was a bloody discharge, but on March 28th the patient had a severe pain in the left groin and was faint and nauseated. At this time a probable diagnosis of gallstones was made, but a second physician decided that a pregnant uterus was misplaced to the left and an abortion was threatened. On April 4th a second and more severe attack occurred, followed by collapse. The patient then was kept in bed until May 12th. Two distinct attacks occurred during this period of forced quiet. Pain, nausea, and vomiting, with tympanites, were the chief symptoms. During one of these attacks one-half grain of morphin was administered before relief came.

The bedside record shows with each attack a rise in pulse rate from 80 to 100 and 120, followed in about twelve hours with a rise in temperature from the normal to 100° or 100½°, with rapid declination of pulse rate and temperature to the normal. The nurse



Tubo-abdominal pregnancy.

was discharged on May 12th, and the patient rapidly improved in general condition. The bloody discharge from the vagina, which had occurred almost continually through the month of April, had ceased.

During the first week in July she came from her home to Cleveland to recuperate. On July 9th, at 10 A.M., the fifth distinct attack of pain occurred. At this time the patient sank into collapse. The history and clinical picture made the diagnosis of extrauterine pregnancy with internal hemorrhage positive. Dr. F. S. Clark, who first saw the patient, called me to operate.

I found the patient in an extremely low condition, with sighing respiration, blanched skin, cold extremities, and small, feeble pulse whose rate was scarcely distinguishable at 170 to 188, temperature 95°. The operation was quickly arranged for in her sister's home.

Under anesthesia the diagnosis was confirmed, the body of the uterus being easily distinguished from the large tumor mass, and in the latter fetal parts could be felt to the left and posterior to the uterus. Such, in brief, was the typical course of this case; and now I desire to call your attention to the value and necessity of certain operative procedures.

As soon as partial anesthesia was induced the introduction of salt solution beneath the breast was begun, and when the patient was taken from the table two quarts had been given, and most of it had already been absorbed.

The placenta was found attached to the posterior surface of the broad ligament and to several coils of small intestine in the cul-de-sac. The posterior wall of the gestation sac was coherent to the colon and small intestines. In the abdominal cavity there were clots, in various stages of organization, representing the different periods of previous ruptures. Ligatures were immediately placed on the ovarian artery and a clamp applied over the tube and broad ligament along the left side of the uterus.

With the checking of the main blood supply the fetus and the various blood-clots were removed from the pelvis, and the placenta was carefully detached. The posterior wall of the gestation sac was carefully handled, with the view to leaving it as a shield for the general abdominal cavity. No attempt was made to clean the general peritoneal cavity, but as much salt solution as the space would contain was poured into it and left when the stitches were tied.

The posterior wall of the gestation sac was sewed to the upper portion of the wound in the abdominal wall, and the cavity of the gestation sac was packed with gauze to control the general oozing. The patient's condition when first placed upon the table was very precarious, but with the absorption of the salt solution beneath the breast and the use of sulphate of strychnin, one-fifth grain, the pulse gradually grew stronger and fuller, and at 4 P.M. was 140 in rate.

One-half pint of salt solution was given per rectum every hour, one-thirtieth of strychnin every two hours, and four minims of fluid extract of digitalis each four hours hypodermically. At 7 P.M. the pulse again began to waver, and again a subcutaneous injection of two quarts of salt solution was given, and at midnight the pulse was 160 and rapidly growing stronger and slower. Twenty-four hours after operation it was 128, and never again went above this point. The stomach was irrigated thirty hours after the operation, and undigested food with a large amount of raspberry seeds were removed. The nausea ceased, and nothing further complicated convalescence.

The rapidity with which this patient responded to the use of submammary injections of salt solution when the conditions seemed most hopeless, and the ease with which the general peritoneum cared for the blood and clots that were left in the cavity, are the two important facts to be deduced.

To one other point must I call your attention: however hazardous seems the attempt, my own conviction is that all of the placenta should be removed in every case. The danger of intoxication or general sepsis from this (usually sloughing) mass is avoided and the convalescence shortened.

And, lastly, I have seen many accidents happen because of the early removal of the gauze packing. My own practice is to wait until nature has made a firm wall about it and the granulation tissue which early permeates the gauze has sickened of its work and died.

CORNUAL PREGNANCY; RUPTURE IN THE FOURTH MONTH; OPERATION; RECOVERY; REMARKS.

By MILES F. PORTER, M.D.,
FORT WAYNE.

I was called July 12, 1901, by Dr. Miller, of Decatur, Ind., to see Mrs. H. I learned on my arrival that the patient had menstruated last in March; that she had had some symptoms of threatened abortion some weeks prior to the present attack, but that she had entirely recovered and was in good health up to within sixteen hours of my visit, when she was taken with severe abdominal pain accompanied by the usual signs of intra-abdominal hemorrhage. Dr. Miller, in consultation with Dr. Beavers, had made a diagnosis of ruptured ectopic pregnancy and had given the patient a rectal injection of normal salt solution prior to my arrival.

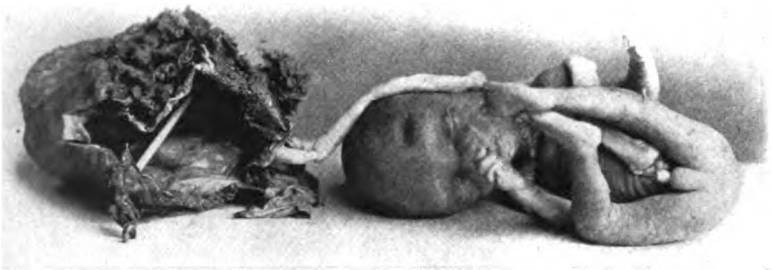
I made a very hasty examination, which convinced me that the vagina and vaginal cervix were normal and that the hemorrhage was not intrauterine. There was a slight bloody discharge from the uterus. Everything seemed to warrant the diagnosis of intra-abdominal hemorrhage, but it was remarked that the time was rather late for rupture of a tubal pregnancy. The patient was a married woman, aged twenty years, and had given birth to one child at term and had had one miscarriage. She was almost in collapse. Preparations were therefore hastily made and the abdomen opened under ether narcosis. The belly was full of blood, through which, with the hand, a ruptured gestation sac was delivered. The amniotic sac was ruptured during the delivery. A temporary elastic ligature was thrown around the sac, after which it was amputated by conical section, the stump closed by deep and superficial catgut stitches, and the elastic ligature removed. The

blood-clots were now removed and the abdominal cavity washed with a large quantity of hot, sterile water. During the washing of the cavity it was noted that the tube and ovary on the side from which the sac had been removed remained intact and attached to the outside of the stump; that the intact horn was much enlarged; that the two cornua were connected by a rather long pedicle. Notwithstanding my great desire to make a careful examination of the case through the open abdomen, the patient's condition prohibited it. As soon as the abdomen was fairly cleaned of blood it was therefore closed with through-and-through silkworm-gut sutures. The cavity was left full of hot water, and during the operation a rectal injection of hot salt solution was given. Hypodermic injections of digitalin were given before and after the operation. The patient was put to bed in a condition no worse than when she went on the table, and made an uneventful recovery. The specimen which is herewith presented (Figs. 1 and 2) shows a thick-walled gestation sac containing a well-formed placenta. On macroscopic examination there appears to be no decidual membrane. No part of the tube or round ligament is attached to the sac. The incised surface indicating the point at which the amputation of the sac was made is irregularly circular, cone-shaped, and about two inches in diameter. I have not been able to discover on this surface any opening which appears to represent the lumen of the tube or the cavity of the uterus; neither was anything of the kind found on the stump from which the sac was amputated. However, owing to the necessity for haste, this examination was rather cursory.

The fetus is a male of about four months. At the time of the operation it was noted that the attachment of the round ligament and tube was at the outer aspect of the stump—*i. e.*, below the gestation sac and to the outer side of the uterus. In pregnancies in rudimentary cornua of unicorn uteri the tube usually springs from the apex of the sac. The method of development of this portion of the genital tract, it would seem, would render this relation of the tube and sac in this class of cases inevitable. In both of Turner's cases, as reported by Sutton,[1] the sac and tube bore this relation to each other. Virchow[2] also points out that the

[1] Bland Sutton. Surgical Diseases of the Ovaries and Fallopian Tubes, p. 358 et seq.
[2] Loc. cit., p. 357.

FIG. 1.

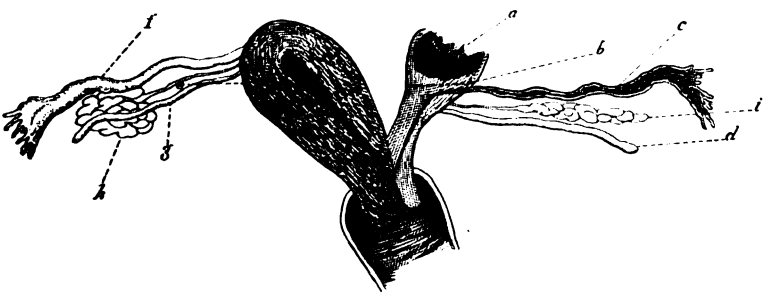


Sac and fetus. Showing ragged margins of rent. Cavity held open by match. To the left is shown the space from which portion for microscopical examination was taken. An idea of thickness of sac can be gained from this point. One-fourth natural size.

FIG. 2.

Showing cut surface of sac extending to margin of rupture on right. One-third natural size.

FIG. 3.



a, ruptured gestation sac; *b*, line of incision; *c*, tube; *d*, round ligament; *e*, right uterine body; *f*, right tube; *g*, round ligament; *h*, right ovary; *i*, left ovary.

round ligament is on the outer side of the gestation sac in cornual pregnancy, while in tubal pregnancy it is attached to the body of the uterus on the uterine side of the sac. Again, in tubal pregnancy the sac walls are very thin, and rupture takes place from the third to the twelfth week. In the case presented the walls of the sac are thick, except at the point of rupture, and rupture did not occur until after the fourth month. Microscopic sections show the sac wall to be composed of uterine tissue and that there is present a decidual membrane.

Now, with the foregoing evidence before us, what are we to decide as to the nature of the pregnancy in this case?

The thick sac walls, the late time at which rupture took place, and the relation of the tube and round ligament make a diagnosis of tubal pregnancy impossible. The relation of the tube and round ligament would rule out cornual pregnancy in an ordinary bicornute uterus. Aside from the relation of the tube and round ligament, all the evidence is in favor of cornual pregnancy.

The anatomic relations found in this case are represented in the drawing here shown. (Fig. 3.) A glance at the illustrations (Figs. 1 and 2) will show no signs of either tube or ligament attached to the sac. An abnormally low attachment of the tube and round ligament to the horn of a bicornute, such as shown in the drawing, would satisfactorily account for all conditions found. These I believe to be the conditions which obtained in my case, and that the correct diagnosis is pregnancy in an imperfect horn of a bicornute uterus, with abnormally low attachment of the tube and round ligament on the side of the pregnancy; rupture in the fourth month. The only other plausible theory is that the pregnancy was an interstitial one, and that the sac had developed in an upward direction, away from the tube, in such a manner as to make it possible to remove the sac without interfering with the tube, as was done in this case. The greatest obstacle in the way of the acceptance of this theory is the presence, as shown by microscopic examination, of a decidual membrane in the sac.

That a decidual membrane might be formed in a tubouterine pregnancy seems entirely possible, and that one would form in a pregnancy of this kind in a bicornute uterus where nature had not definitely separated the tube from the uterus seems extremely likely. But Sutton, Doran, and Parry say they have never seen

a decidual membrane in an extrauterine sac. Sutton[1] says that all authorities who have studied the subject are unanimous that no decidua forms in the tube. The absence of communication between the sac and the tube and between the sac and the cervix, which was found in this case, is worthy of note.

Absence of communication between the sac and the cervix seems to be common, and was noted by Turner in the two cases examined by him and referred to in Sutton's work. In Turner's cases, however, the lumen of the tube was continuous with the gestation cavity. As above stated, this is not true of my case. Sutton[2] says the lack of communication between the cervix and sac may be accounted for by supposing that the channel is closed subsequent to the impregnation. The same explanation will also account for the lack of communication between the tube and sac.

Kussmaul[3] has collected 13 cases of pregnancy in rudimentary cornua, all of which ruptured between the fourth and sixth months. According to Sutton, Virchow and Luschka have each reported a case.

Turner has reported two cases, which are described in Sutton's work.

Parry[4] and others think that Kussmaul overestimates the frequency of cornual gestation.

Dunning,[5] in his paper before the American Medical Association on "Double Uterus and Vagina," tabulates 52 cases of uterus bicornis, in 21 of which pregnancy had occurred. He concludes that the malformation is more common than is generally supposed.

M. L. Secheyron[6] reports a case of bicornute uterus in which the first pregnancy and labor were normal in every respect, but in the eighth month of the second pregnancy rupture occurred as the result of a fall.

Weiner[7] removed by laparatomy a mature fetus, in a state of maceration, from a bicornute uterus about a month after a missed labor. The woman had previously borne two children.

Ferguson[8] reports a case in which during a celiotomy he dis-

[1] Loc. cit., p. 335.
[2] Loc. cit., p. 361.
[3] Greig Smith. Abdominal Surgery, p. 426.
[4] Loc. cit.
[5] Medical News, vol. lii. pp. 558, 559.
[6] Ibid., vol. xlv. p. 68.
[7] Annals of Surgery, vol. iv. pp. 371, 372.
[8] Journal of the American Medical Association, vol. xxxv. p. 883.

covered a U-shaped uterus in a woman who had borne two children.

Hollander[1] made a similar discovery in like manner. One cornu in this case was pregnant.

Sutton[2] is authority for the statement that gestation in bicornute uteri rarely gives rise to trouble.

Even the cases above referred to in which rupture occurred would seem to lend color to this view, for in three of these cases, including my own, previous normal pregnancy had occurred four times. I can find no reference in the reports of the other cases to this point.

Ferguson's and Hollander's cases would seem to show that many cases of normal labor occur in women with bicornute uteri without the malformation being recognized. It is only when pregnancy occurs in an ill-formed horn of a bicornute uterus that rupture is likely to occur. The conclusion is warranted, I think, that rupture of pregnant bicornute uteri is not only absolutely rare, but relatively rare as well—*i. e.*, the proportion of ruptures as compared with the pregnancies in bicornute uteri is small. I have been able to find but 18 cases, which with my own make a total of 19 cases reported. Inasmuch as the treatment for this condition is the same as that for the other forms of ectopic pregnancy, the differential diagnosis is not important. It is well that this is the case, for the differentiation is wellnigh, if not quite, impossible. Especially is this true as between interstitial and cornual pregnancy. In both the rupture occurs later than in tubal pregnancy, and in both the hemorrhage is usually profuse. The average time at which rupture occurs is, however, later in cornual than in interstitial pregnancy.

In cases of cornual pregnancy there is less likely to be a history of previous sterility than in other forms of ectopic pregnancy. Evidence of inflammation of the tubes is more frequently found in the other forms of ectopic pregnancy than in cornual pregnancy.

[1] Gould and Pyle. Anomalies and Curiosities in Medicine, p. 811.
[2] Diseases of the Ovaries and Fallopian Tubes, p. 357.

DISCUSSION ON THE PAPERS OF DRS. HUMISTON AND PORTER.

Dr. Edward J. Ill, of Newark, N. J.—Both of these cases are of real interest to us. We have had so many thoughts presented to us while the papers were being read that I have no doubt a great deal can be said about them. I believe that the treatment in Dr. Humiston's case was all right for that sort of case. I do not think that we should prolong these operations. The quicker an operation is done and the abdominal cavity walled off, the better the chance for the patient.

I agree with him as to the quantity of normal salt solution that these patients will receive and absorb. I suppose, with most of us, it has become a rule to begin with normal salt solution and continue it through the operation in the extreme cases. There are other locations where it can be used. The assistant who administers the normal salt solution should know how to massage the parts. This is an important point. Massage will assist materially in the rapid absorption of fluid.

I wish Dr. Porter had made his drawing in such a way that we could feel sure that in the right side there was not a fibroid tumor and that a pregnancy existed in the right horn of the uterus which ruptured. When a great abnormality occurs, such as the insertion of the tube low down, I am inclined to think it must be an error. Those are important points from an embryologic standpoint. I hope Dr. Porter will be a little more explicit in his closing remarks.

Dr. Edwin Walker, of Evansville, Ind.—What attracted my attention in both of these cases was the use of salt solution in the abdominal cavity. It seems to me we are in the habit of using salt solution in the abdominal cavity too much. We should bear in mind the indications for it, and why we should or should not use it. Dr. Humiston's case shows clearly that in that class of cases we do not need to use salt solution. We use salt solution for one or two things. In the first place, mechanically to wash out débris. In a great many cases it is unnecessary. Of course, the peritoneum will take care of it. In the second place, we use salt solution in the abdominal cavity to promote rapid absorption, yet I think in most cases where we have débris of any kind in the abdominal cavity it is better not to hasten absorption, because if there is any infection from toxins or ptomains, it will be more readily absorbed, to the detriment of the patient.

Personally, I can see no benefit from, or reason for using, the salt solution in Dr. Humiston's case, because there were organized clots which would not have been affected by the solution. As they become organized they are drier and are absorbed, and salt solution would only aid in the absorption of any septic material that might be present. I believe it is a mistake in all cases to wash out the abdominal cavity with salt solution. It is an error we have fallen into, and we ought to turn back. These cases show it. By wiping out the cavity with dry gauze we can clean it sufficiently if it is not infected, and this is certainly a safe procedure. If the abdominal cavity is infected we do not promote the absorption of material which we do not want to be absorbed. With very few exceptions, for ten years I have not used salt solution in the abdominal cavity, and every time I have done so I have regretted it. I have not had any reason to change my opinion. It seems to me it is rational not to use it.

DR. M. ROSENWASSER, of Cleveland, Ohio.—I heartily indorse Dr. Humiston's treatment by the injection of subcutaneous saline solution, but I have my doubts as to the value of salt solution in the abdominal cavity in the presence of a peritoneum whose function is crippled by disease. I have used the salt solution frequently under like circumstances, and must confess that I have not seen any special benefit derived by the patient. I can understand how the solution when used subcutaneously may be quickly absorbed in the connective tissue; but its ready absorption cannot be presumed in a serous cavity affected by chronic inflammation, as in Dr. Humiston's case. Whatever benefit the patient may have derived from the salt solution was probably due to its absorption by the connective tissue and by the mucous membranes.

In packing the extraperitoneal cavity that is left I have not for the past few years used iodoform gauze, but have been using sterile gauze exclusively. Iodoform gauze packed into a raw wound when a patient is at the time in shock, adds the danger of iodoform poisoning without compensating benefit. The use of sterile gauze at least rids us of the disgusting odor of iodoform—a clear gain without a drawback. It has been my practice not to disturb the packing for at least a week, unless the symptoms called for earlier removal. The walls of the cavity have, meanwhile, become covered with granulations; they are secreting serum, which loosens the papillæ caught in the meshes of the gauze, and the gauze will come out without hemorrhage or shock and with comparative ease; whereas, taking out the gauze on the third or even on the fifth day may be the means of drawing up into the wound a portion of the omentum or an intestinal loop still intimately attached

to the gauze. I heartily approve of the practice of allowing the gauze to remain eight or ten days, and would reiterate my conviction that iodoform should be relegated to the past.

Dr. Herman E. Hayd, of Buffalo, N. Y.—Two or three interesting facts have come up in the discussion of this subject. First, whether it is necessary to wash the abdominal cavity after operations of this character, or not, with the hope of getting rid of detritus and foul stuff. Second, whether by using salt solution and leaving it in the peritoneal cavity for absorption we assist materially the circulation. I think we can approach the subject from those two standpoints. It is good to wash the abdominal cavity out, and likewise it is good to leave salt solution in the abdominal cavity, because it will be absorbed. I do not agree with Dr. Rosenwasser when he says the salt solution is not absorbed. I have filled the peritoneal cavity—in fact, I have taken a funnel and poured salt solution into the cavity, leaving two stitches open, and in an hour and a half afterward, when the patient had died and a postmortem examination was made, the solution was found to have been absorbed, showing conclusively that the salt solution is absorbed by the peritoneal cavity, and there is no reason why it should not be, because the lymphatics are just as great in their absorptive power, if not more so, than is the cellular tissue.

Dr. Rosenwasser.—I do not wish to be understood as saying that the salt solution is not absorbed, but that it is not readily absorbed in a pathologic state of the peritoneum.

Dr. J. Henry Carstens, of Detroit, Mich.—When we have cases as those of extrauterine pregnancy and other conditions, what are we trying to do? We are aiming at one thing, to bring about a new condition of the surrounding tissues, a walling off of the sac in a particular space. We want agglutination of intestines and of omentum, so as to keep the disease or abnormal condition in one particular locality. Nature does this by throwing out a plastic exudate. If a carpenter wishes some glue, it has got to be thick, not thin. The thicker it is, ordinarily, the better it is and the firmer it holds the parts. If the glue is diluted it will have no power of cohesion. There will be no adhesion formed. So if we take and throw a lot of salt solution into the abdominal cavity, it will liquefy the plastic exudate which nature throws out, and hence we prevent to a great extent agglutination or a walling in of the space that we so much desire. For that reason it is bad practice to throw water into the abdominal cavity and leave it there. I may be willing to throw in salt solution to wash out the cavity in some cases, but in the present state of our knowledge we can clean out any cavity just as efficiently with sponges as we can by

washing it out. If this can be done there is no need of washing it out. The drier we keep it, the better the chance for agglutination and walling in, which we desire.

I agree with what Dr. Rosenwasser has said in regard to the use of iodoform gauze, and I have not employed it for years. I dislike the disagreeable odor connected with it. Nice, clean sterile gauze is good enough for me. With reference to throwing normal salt solution into the peritoneal cavity, I prefer to introduce two or three quarts of it into the rectum. It is absorbed just as quickly in the rectum as it is when introduced into the peritoneal cavity. We get the same effect from it. We do not liquefy and make ineffective the plastic exudate thrown out by nature, and for that reason I agree with what has been said. The other points set forth in the paper are commendable. It is unnecessary to clean out the blood, as Dr. Humiston states. I do not pay much attention to it. Any clots I can get hold of easily I remove; the rest I leave.

With reference to Dr. Porter's paper, we need a microscopic examination to throw more light on the question as to whether the part involved is a portion of the uterus itself, or the horn of the uterus, or a bicornute uterus.

Dr. Porter.—A microscopic examination was made by an expert, and it was pronounced uterine tissue throughout. He also mentioned the presence of decidual membrane. The microscopic examination was made by Dr. Reamy, of Fort Wayne, who is a thoroughly competent microscopist.

Dr. Carstens.—I beg your pardon, doctor.

Dr. James F. Baldwin, of Columbus, Ohio.—I have been much disappointed in the use of salt solution, whether injected into the subcutaneous tissue or left in the abdominal cavity. I do not believe that I have ever had a patient recover in whom the solution was used in either of these ways. A few months ago I operated for a physician in Columbus on a case of ruptured ectopic pregnancy, the hemorrhage having been going on for about two weeks, so that the woman was practically moribund when brought to the hospital. I used salt solution subcutaneously both at the very beginning of the operation and throughout most of it, but none was left in the abdominal cavity. The bleeding point was ligated, the clots cleaned out, and the abdomen closed. Salt solution was used at intervals of a few hours twice after this, but she died in about twenty-four hours. The solution was absorbed with promptness, but seemed to produce no effect upon her condition. Her attending physician was somewhat disappointed because the salt solution was not used to flush out the abdominal cavity

and the cavity left filled with it. Two weeks later I was called by the same physician to operate on a similar case, in which rupture had occurred two days previously. The woman was collapsed and the abdomen full of blood. Salt solution was commenced subcutaneously immediately, and continued throughout the operation. The cavity was washed out with the fluid repeatedly, and left full of it at the completion of the operation. The solution was used again during the day, but the patient died, as did the first.

I have used the salt solution over and over again in these bad cases, but it has always seemed to me to be absolutely inert. The pulse, in some of these cases, has seemed to be materially strengthened, but the result was apparently the same as if none had been used. We have at the hospital a head nurse who for some years was connected with a large Eastern institution, and she told me that during the three years that she was there salt solution was used quite freely, but that its use was generally a mere prelude to a call for the undertaker.

Dr. Charles Greene Cumston, of Boston, Mass.—I have very little to add to the discussion regarding the use of salt solution intra-abdominally. In the first place, given the condition a patient will be in when we operate for a ruptured tubal pregnancy, I do not think either the peritoneal cavity or the subcutaneous cellular tissue will present a sufficient degree of vitality, so to speak, to be able to absorb the solution in the majority of cases. Again, in those cases where we are injecting salt solution into a cavity whose walls are the result of a pathologic product, I do not believe that the walls of that cavity will absorb the liquid. It has been my experience that salt solution has always been unfavorable, whether given subcutaneously, by rectum, or intra-abdominally. The only value that I can see in salt solution is after a prolonged intra-abdominal operation, where the intestines have been exposed, where the loss of heat has been great and we wish to introduce a certain amount of heat into the abdominal cavity.

The use of gauze sponges in wiping débris out of the cavity should be extremely limited, because it is known that gauze will remove the epithelial covering of the peritoneum, of the intestines, and of the parietal peritoneum, and I believe this is a fertile cause for adhesions after operation. If we want stimulation, I have always relied on rectal injections of coffee and brandy, with a free use of strychnin subcutaneously, as well as musk and camphor. The latter are two of the most powerful stimulants we have, and are, in my opinion, to be greatly relied upon.

As to the use of iodoform gauze, I have not employed it for the last five years, and do not intend to do so.

Dr. Edwin Ricketts, of Cincinnati, Ohio.—I was taught that by filling the abdominal cavity with warm water it would overcome shock. In time I gave that up. Later on, when the craze came upon us for the use of salt solution in the abdominal cavity, filling the cavity with it, I, like others, resorted to it, and I must confess that I have been greatly disappointed. As to its subcutaneous use, the results have been overestimated. With reference to wiping out the abdominal cavity by means of a sponge, it should be done carefully and gently, not roughly. If the sponge is used as vigorously as I have seen some practitioners use it, it must necessarily be disastrous to patients. The gauze sponge should be used with as little friction of the peritoneum as possible.

We have not as yet found any remedy that is equal to the judicious use of strychnin for overcoming shock. In doing all of our work the tendency has been rather to overdo things, and I think this is a timely discussion. We have undoubtedly gone too far in the use of saline solution.

I did not hear the paper of Dr. Humiston, and of course I merely speak to the point of the use of saline solution and injections of it.

With reference to the case reported by Dr. Porter, he has cleared up one point as to what the tissue was by mentioning the result of the microscopic examination.

As to the communication, I am a little in doubt. I hope Dr. Porter, in his closing remarks, will clear the way for us and satisfy us just how this pregnancy took place.

Dr. Humiston (closing the discussion on his part).—I am very glad my paper has elicited a free discussion of the subject. Dr. Walker says he would not use salt solution in the abdominal cavity in such a case, and he does not believe it does any good. If he had a case with blood-clots and adherent intestines, as I had, he would have rubbed quite energetically for a long time to get them out, and done much injury to the peritoneum. I claim that in this case, where the abdominal cavity was quite filled up as far as one could see with blood, if I had attempted to handle the intestines and delay the operation for the length of time it would take to cleanse the abdominal cavity, I believe I would have lost my patient. I do not believe in irritating the peritoneal surface with dry gauze used as a sponge. Gauze will injure the peritoneal surface, and often prove disastrous. I do not use saline solution in every case, but in all cases where I do a complete operation, and the patient has been an invalid for a long time, is anemic, and has a pulse that is never below 100, and at the close of the operation perhaps 120, without any particular loss of blood, I like the use

of salt solution in her abdominal cavity, and I use it freely. It prevents shock. In very weak cases it is important to commence the submammary injection of saline solution as soon as partial anesthesia occurs, and keep it up during the operation. With reference to iodoform gauze, I rarely use it as such. It is all wrung out of hot sterile saline solution thoroughly, so that the excess of iodoform is washed out of it. I use it in this way, it being wrung as dry as possible before using. I have never had a case of iodoform poisoning.

With regard to walling off the upper abdominal cavity, I made use of the gestation sac as a wall, stitched it carefully to the abdominal wound, so that the intestines and omentum came against it, but could not drop down in the pelvic cavity and form adhesions.

I never saw an abdominal cavity that had so much blood in it as did this case, and we were anxious to get her off the table alive. Of course, moribund or practically dead patients will not be benefited by the use of salt solution; at the same time we may prevent a development of shock if we use salt solution very hot, and pour two to four quarts in the abdominal cavity. It warms them up, and I have seen the pulse within five minutes after the introduction of the saline solution greatly improve, showing the immediate beneficial effect it has upon the circulation.

Dr. Porter (closing the discussion).—I wish to say that there is no question about the gestation sac in my case being composed of uterine tissue. The microscopic and macroscopic evidence proves that absolutely. Moreover, there is a decidual membrane present which, according to all the evidence we were able to get, is absolutely positive proof that the gestation had taken place within uterine tissue.

Regarding the criticism of Dr. Ill, he says that a low insertion of the tube like this is exceedingly infrequent, and that therefore he suspects I have amputated the uterus and left a fibroid tumor. If I have amputated the uterus, Dr. Ill must explain the absence of tube and round ligament in that amputated uterus on both sides instead of one. In other words, the objection of Dr. Ill would hold just as well and be just as strong against amputation of the uterus. I could not amputate the uterus through the cervix without seeing tube and round ligament at both cornua ordinarily. I think I know the difference between a uterus and a fibroid, particularly a uterus that is enlarged as the result of pregnancy. We had decidual membrane discharged from the vagina. It must have come from the other cornu, as there was no hole through which it could get out of the one amputated.

As to the connection between the gestation sac and uterus, I do not think there is a case published in which closure is not present. In

every case a report of which I have read this closure on the uterine side is present; that is to say, there is no communication between the gestation sac and the vagina apparent at the time of the operation or at the autopsy, as the case may be. At first it was common to explain the pregnancy in these cases by saying that the spermatozoa passed up through the opposite cornua, and not through the opposite tube, passed over to the ovary on the impregnated side, and got down to the gestation sac through the tube, the lumen of which is generally patulous. The only thing out of the ordinary in this case of mine is that we have failed to find thus far an orifice through which the gestation sac may communicate with the tube. In the paper I stated that I failed to find it. If you examine the specimen you will notice that the placenta has not been removed. You may find a small uterine ostium, and be able to follow that out through the uterine tissue, and it may show that the communication between the tube and gestation sac was intact. This latter is true of all the published cases I have read. But there is nothing unusual in this closure of the communication between the gestation sac and the uterus. As I said in my paper, there is only one other possible diagnosis in my case, namely, that it was one of interstitial pregnancy in one horn of a bicornute uterus. Again, the tube and ovary are attached to the "fibroid" that Dr. Ill thought I left in the abdominal cavity at the opposite side. There can be no question about that. The only question is as to whether it is an interstitial pregnancy in one horn of a bicornute uterus, or whether it is a case of ruptured pregnancy in the rudimentary horn of a bicornute uterus. Personally, I would prefer to have the diagnosis in favor of interstitial pregnancy, because it is much rarer than this is.

I would like to say a few words about the subject of saline solution. I never hear an extremely positive statement, one that seems to run counter to the judgment of the majority in the medical profession, that I do not think of the advice of Cromwell to his Parliament, when he said: "Gentlemen, in the name of God, conceive it possible that you may be mistaken." And with this in mind I want to say that nothing in therapeutics has been shown to be more positively proven than the efficacy of salt solutions, properly administered, in cases of so-called shock, which in the majority of cases I believe means hemorrhage. I have seen a man on the operating-table during the course of the removal of an enormous sarcoma of the spleen, pronounced dead by Dr. B. V. Sweringen, who is an anesthetist of experience, and yet that patient survived the operation, and certainly his survival was due to the use of salt solution. I have seen two men brought in within the last six weeks who were injured in a railroad accident, both requiring

double amputations, one at the upper third of the thigh and middle of the leg and the other at the middle of the thigh and middle of the leg. I gave intravenous injections in both cases, and amputated, not waiting for the shock to subside, and the patients both got off the table in better condition than they went on. What was it due to? Personally, in cases of hemorrhage I would rather have injections of salt solution intravenously than all the digitalis, musk, and everything else in a drug store. The condition is one of failure of the heart, because it has nothing to contract upon. The heart beats regularly and rhythmically because it is being continually supplied with warm saline solution, and it stops beating in these cases because the saline solution is not there. It is a common thing for the anesthetist to remark upon the increased force and volume of the pulse in these cases very soon after the transfusion is begun. I want to say as to the use of salt solution in the abdominal cavity for the purpose of having it absorbed, I have had but little experience with it in that way. I prefer to inject it into the circulation. In the spleen case above referred to, during the course of operation the patient took eleven pints of normal salt solution. He had lost an enormous amount of blood. Dr. Carstens says he throws the salt solution into the rectum. I have my doubts whether it is absorbed promptly enough when given in that way.

Another objection which has been offered to the use of salt solution in the abdominal cavity is that the peritoneum is not in a condition to absorb it—that its vitality is diminished. So far as we know, "vitality" has very little to do with the absorption of the fluid; it is a mechanical process; it is one of osmosis. On the one hand, we have in the bloodvessels after operations attended by hemorrhage, diminished pressure; we have increased density of the blood. These conditions favor rather than inhibit absorption of fluids from the peritoneal cavity. I do not believe anyone would throw into the abdominal cavity a considerable quantity of salt solution to be mixed up with infectious material, and leave it there. Dr. Humiston isolated the infected area, that is the gestation sac, in his case from the general peritoneal cavity, using the salt solution in the latter, with the distinct idea that it would be absorbed, and thus fill the vessels.

I want to say that I am going to turn this specimen over to the pathologist of the Indiana State Medical Society, and I am going to give him the privilege of making any examination he desires, and if there is any change to be made in my report as to the nature of the pregnancy, it will be given in the published proceedings.

FIBROIDS AND PREGNANCY.

By CHARLES GREENE CUMSTON, M.D.,
BOSTON.

Fibroids which will give rise to serious complications during pregnancy or the puerperium will always remain rare instances, and this for several reasons. The first and most important reason is to be found in fibroid degeneration of the uterine tissue itself, because when such degeneration is present it in most cases precludes the possibility of pregnancy. On the other hand, when a fibroid develops in the uterine parenchyma, sterility will usually result, on account of the obstruction produced in the uterine canal and the changes which take place in the cavity of the uterus, which render the contact of the seminal fluid and the ovum practically impossible from purely mechanical hinderances; then, again, the changes produced in the uterine mucosa prevent pregnancy from taking place, on account of excessive menstrual flow as well as the large amount of watery secretions which exude from the uterine cavity resulting from a fungous endometritis. Atrophy of the uterine mucous membrane may also be present in some cases of fibroid, which naturally prevents the development of the ovum after impregnation.

Another thing which renders pregnancy complicated by fibromata an infrequent occurrence in practice is the question of the time of marriage. It is fair to assume that the majority of marriages, as regards the female at least, are contracted in the twenties, and the greatest fertility is certainly during the twenties; while, broadly speaking, fibromata appear in the forties, less frequently in the thirties, and rarely in the twenties, so that it is evident that a complication during pregnancy from these neoplasms is not frequently met with. There are, of course, excep-

tions to all rules, and there are many cases where, in spite of mechanical impediments, conception does take place, and the fetus will develop and the patient will go to term.

When a fibroid tumor is present in a pregnant female, severe hemorrhage is likely to arise at any moment, on account of the pathologic changes which have taken place in the endometrium, usually resulting in a miscarriage at an early date; or, on the other hand, the uterus may be unable to increase in size beyond a certain limit, and the product of conception will be expelled. This may not always be due to the size of the fibroid or its anatomic position, but may result from the fact that on account of the presence of the growth a retroversion of the uterus has taken place, and miscarriage results from the latter condition rather than directly from the fibroid.

I would now like to consider those cases where pregnancy is complicated by retroversion of the uterus and a fibroid tumor. In these instances there is imminent danger for both mother and offspring, on account of the presence of the neoplasm at the time of birth especially, although there is danger from the growth at an earlier period. It must also be remembered that with the general hyperemia of the uterus during gestation this increase of blood supply will naturally cause an increase in the size of the neoplasm, which in some cases is most rapid and considerable. If the patient is fortunate enough to have a fibroma situated at such a point that its displacement out of the small pelvis becomes an impossibility, or if the growth has developed in the corpus uteri and has become pedunculated, so that it may extend down into the entrance of the pelvic brim, it most frequently results that dystocia ensues, usually in the form of transverse positions; or, again, the growth may produce a mechanical hinderance to the expulsion of the child which cannot be overcome by nature and only with difficulty by the surgeon.

We should also bear in mind the possibilities of fibroma of the fundus producing very serious conditions in those instances where the growth occupies a large portion of the abdominal cavity, and by the development of the uterus is pushed up against the diaphragm, compressing the stomach, ureters, or other pelvic viscera. Now, if under these circumstances should delivery take place without much difficulty, the danger then lies in severe

hemorrhage occurring postpartum, or suppuration arising in the neoplasm.

On account of all these dangers, especially to the mother, it is easy to conceive that surgeons have considered this question very closely, and have endeavored to formulate proper prophylactic treatment during pregnancy. The treatment may be conveniently divided into three groups, as follows: (1) The induction of premature labor; (2) the enucleation of the growth through the vagina or the abdomen during pregnancy; (3) Porro's operation and total extirpation of the gravid uterus.

I desire, first, to consider briefly artificial abortion or artificial premature labor. Not long ago this line of treatment was frequently resorted to; but the results were, generally speaking, so unfavorable that it has been practically abandoned as an irrational procedure, and I think that I may safely say that artificial premature labor in these cases should never be resorted to. It should only be considered in those instances where the neoplasm threatens to become a general mechanical impediment to normal delivery; but the chances of an artificial premature delivery are, in my way of thinking, far inferior to those in cases of contracted pelves. We should always remember that although a fibroid may not be reduced during pregnancy, it may become so during confinement, and in some cases it has even been known to recede spontaneously.

Still less is it possible to calculate the degree of softening and compressibility that the tumor may undergo during labor, and we should never forget that artificial premature labor is far more prone to give rise to sepsis than is almost any other form of gynecologic operation, even when a rigorously combined aseptic and antiseptic technic has been followed. If a premature labor is produced in cases where large, subserous fibroids are producing the above-mentioned symptoms of displacement and compression of the uterus, the good effects will probably be lost because pregnancy having gone too far has already set up changes which will render the condition of affairs serious.

Regarding enucleation of the neoplasm through the abdomen or the vagina, when there are no symptoms of interference with pregnancy on the part of the growth, I would say that in all probability this method of treatment will generally be resorted to in cases of polypus of the cervix or uterine canal, when the pedicle

is easily accessible and where removal can be effected without causing too much disturbance of the uterus. This operation should be resorted to in order to avoid any injury to the uterus during confinement as well as to prevent the imminent danger of sepsis during the puerperium to which these neoplasms are most prone to give rise. In order to prevent any impediment for the further development of the child the operation should, I believe, never be performed by the vaginal route in those cases where the neoplasm is of large size or where its exact anatomic structure cannot be clearly made out. Not only the position and the size of the growth or the presence of pregnancy are liable to make the vaginal operation most unsuitable, but also the greater operative obstacles in these circumstances, on account of the increased size of the uterus, should discourage the surgeon to attempt the removal of the growth in this manner. The danger of hemorrhage is also far more considerable in operating through the vagina, and the very great possibility of not being able to bring the operation to a successful end would be sufficient cause to condemn the method.

Myomectomy by abdominal incision is resorted to during pregnancy for large subserous or interstitial fibroids of the corpus uteri, or when the growth has developed into the broad ligament, whether they be in either case pedunculated or not. As far as I am able to see, no definite rules can be formulated at the present time as to the indications for abdominal section in these cases, for the very simple reason that every instance is a law unto itself, and therefore each one requires the weighty consideration of the surgeon.

It is most obvious that fibroids may require removal, and must be removed by enucleation during pregnancy because of the serious symptoms which may present themselves, the latter being usually due to a rapid development of the neoplasm; or from the appearance of symptoms of peritonitis, which are usually produced by a torsion of the pedicle, resulting in necrosis of the tumor; or to those symptoms produced by nephritis from compression, or a hypertrophy of the heart, or certain conditions produced in the lungs which necessitate rapid and active interference.

On the other hand, the question as to whether the neoplasm is liable to be an impediment to delivery is one that is by no means absolutely certain in the large majority of cases. A growth which

in the beginning will withstand all attempts on the part of the physician to replace it may later on in pregnancy be replaced by the surgeon or may even become so spontaneously. An irreducible growth may become softened, and the apparently invincible impediment is finally overcome, frequently by the force of nature alone. From what I have said I would conclude that it is therefore better to abstain from operating as long as possible, but carefully watching the development of both the uterus and neoplasm, because the success of an ultimate operation does not by any means decrease as the time of confinement draws near. I believe that this delay in removing fibroids during pregnancy is still more justified from the fact that during the latter months of gestation surgical interference is rendered easier, and that the life of the child can usually be saved, for there appears to be no doubt that enucleation, especially if it be undertaken during the first five months of pregnancy, frequently results in miscarriage.

The removal of pedunculated fibroids through the abdomen is not attended with any great risk, and if attempted at the end of pregnancy will in the large majority of cases never endanger the life of the child if skilfully performed. In those cases, however, where the growth has developed in the midst of the uterine parenchyma, it is evident that in order to enucleate it the uterine tissues are largely interfered with, and from this fact it is evident that the life of the fetus will be endangered.

There is one fact, however, which has made enucleation during pregnancy very dangerous, and that is severe hemorrhage arising from the uterine parenchyma; but if the incision over the growth is made small, and if the neoplasm be seized by strong tooth forceps and removed by morcellation, this danger is certainly considerably lessened, especially so if little by little as the tumor is removed deep sutures are passed into the parenchyma and tied. During the operation any severe traction on the growth must be carefully avoided, and all that is necessary is to put the capsule on the stretch. When dealing with a subperitoneal growth for which an elliptical incision is made, or when pushing the capsule back in those cases where a layer of uterine muscle covers the growth, I think it is good practice to immediately pass a long, sharp needle beneath the bed of the tumor, and as soon as the latter is removed the ligature may be tied. As enucleation pro-

gresses similar sutures are passed, so that when complete removal has been effected the compression produced by the sutures will have stopped all bleeding from the operative wound.

The radical operation for fibroids complicating pregnancy has been performed by either Porro's operation or total extirpation of the uterus, the child having of course been previously delivered, when it was viable, by Cesarean section. Each of these methods has certain advantages, and their indication principally depends on the predilection of the surgeon for one or the other. I believe, however, that most modern operators employ the typical operation of Porro, because the vaginal portion of the cervix belongs in reality to the vagina and forms the natural vault of the canal, and this it is important to retain, if possible, because it forms the bottom of the peritoneal cavity, which it is well to keep closed. To excise the vaginal portion of the cervix and then sew up the peritoneal cavity is, in my way of thinking, an unnecessary trouble for the operator.

There are other advantages which are decidedly in favor of Porro's operation. If the vaginal portion of the cervix uteri is left the vagina will retain its natural elasticity and solidity, so that coitus may be accomplished without either pain or difficulty. Now, on the other hand, the cicatrix which is left after total hysterectomy is oftentimes very sensitive for months or even years after the operation, so that sexual intercourse cannot take place on account of the distress to which it gives rise. Again, when total hysterectomy has been performed the patients often suffer from severe dragging pains during evacuation of the bowels, which are in all probability due to adhesions between the descending colon and the vaginal vault.

There is only one case in which I should be inclined to resort to total hysterectomy, and that is when fibroids have developed in the cervix, and which extend so deeply that they involve the external orifice. In these cases there is no normal cervix, and supravaginal amputation cannot be performed. Total hysterectomy is the only method that can be applied here, because if the Porro operation were done masses of myomatous tissue would be left in the vaginal vault.

When performing total hysterectomy great care must be taken to avoid cutting the ureters or including them in the ligatures. I

believe that the bladder is not in so great danger, but we should have ever present in our minds the changes in position which this organ undergoes from the presence of fibroid growths—a point which I have discussed at length in a paper on "Wounds of the Bladder during Abdominal and Vaginal Hysterectomy," which was recently published in the *Boston Medical and Surgical Journal.*

To sum up, I would say that if the cervix is free from any fibroid change, supravaginal amputation should be performed, but where this portion of the uterus is involved in the pathologic process, total hysterectomy is indicated.

There is still one other indication for total hysterectomy, and that is when infection has already taken place and where there are undoubted signs of a septic process going on in the uterus; and here it is absolutely necessary to remove the corpus uteri and cervix, because I believe that in most cases puerperal infection has for its starting point the latter portion of the uterus. It appears to me when we are dealing with a case of puerperal infection produced by fibroids, that vaginal hysterectomy is absolutely contraindicated.

To conclude, I would say that direct operative treatment during pregnancy for the removal of fibroids is rarely indicated, and in most cases it appears to me more advisable to wait until labor before operating, and in some few cases it is probably better to interfere during the puerperium, when the child has been expelled without operative interference. Premature labor artificially produced should be rejected. According to the time of pregnancy as well as to the physical qualities of the neoplasm, the surgeon will choose between conservative myomectomy and radical operation. The removal of pedunculated fibroids or those which are easily enucleated on account of their accessibility is at all times admissible and to be advised. Since enucleation easily determines a miscarriage, it should be delayed as long as possible. Immediately before or during confinement this operation is decidedly indicated when the patient is a young woman with a uterus capable of other pregnancies if the organ can be saved. This, unfortunately, is seldom possible when the growth is large or multiple or when the cervix is involved in the process.

Thus while conservative myomectomy or the radical operation offers us the means of removing danger during pregnancy, they

also prevent danger during labor, and in many cases both lives may be saved.

I have little to say regarding the obstetric part of these cases, as my experience here is limited; but I would say that at no time should the forceps be applied in order to overcome any impediment to birth produced by the presence of a fibroid, as is the case in contracted pelves, because if their use is persisted in there is great danger of rupture of the organ. Judging from the results coming from various clinics, I should be inclined to believe that version under these circumstances is a most deplorable method. If, however, the infant is dead, perforation may be recommended, although its accomplishment is oftentimes rendered very difficult on account of the high position of the head. If labor has taken place without instrumental interference the manual removal of the placenta will have to be resorted to.

The question as to whether to wait or to operate is the all-important one. To a certain extent, softening and compression of the neoplasm may be expected; but in those cases where the pelvis is completely blocked up by the growth, and where the impossibility of a natural labor is evident, Cesarean section should be resorted to before the birth-canal has become too greatly distended and before unfavorable conditions arise which render the ultimate result doubtful. Cesarean section is also indicated where no signs of sepsis have shown themselves, and where all other conditions are favorable, especially so because delivery through a narrow pelvis simply means great danger for the patient.

As regards the puerperium complicated by fibroids, we should consider the following facts: first, the growth may decrease in size, and some have even been known to completely disappear; but, secondly, on account of their presence there is always great danger of hemorrhage and a decided tendency to narcosis and suppuration, with all the dangers of intense septicemia to which they give rise. This latter complication is rare, but it has fallen to my lot to have had three examples of this condition under my care. The histories of these cases I will briefly relate, and beg in closing these remarks to say a few words more particularly regarding this serious complication of the puerperium.

CASE I.—The patient, aged twenty-six years, married two years, was delivered at term by the family physician of a

handsome girl baby. Labor was perfectly normal and spontaneous, lasting twelve hours. The placenta was expelled twenty minutes after the delivery of the child. No hemorrhage. The next morning when seen by her physician the temperature was found to be 39° C., the pulse 120, respiration 24. There had been no chill. In the evening the pulse was 130, the temperature the same as in the morning, and respiration 25. The lochia other than being very abundant presented no abnormal condition; but not understanding the cause of the rise in temperature and pulse, her physician carefully curetted the uterus, but without removing any placental tissue or other débris. He found, however, by abdominal palpation that the uterus extended four fingers' breadth above the umbilicus, and that it was unusually large, so that it filled up the pelvis completely and extended well over to the flanks.

The next morning at nine—that is to say, about thirty-six hours after delivery—the temperature was found to be 40° C., and the pulse small and weak, at about 145 to the minute. The patient presented all the appearances of one afflicted with profound sepsis, and I was asked to see the case. Upon my arrival I found the condition of affairs just mentioned, and by palpation I made out the uterus, which felt about the size of a nine months' pregnancy, more or less hard to the feel.

To make a long story short, I would simply say that the patient was admitted into the hospital and the abdomen opened, and an enormous uterus was tilted out and total abdominal hysterectomy was accomplished, but by the time the abdomen was closed the patient was dead.

Here was a case of intense septicemia arising in an enormous uterus which had undergone what I term a fibroid transformation.

On section the walls of the organ measured about 10 centimeters in thickness, and hardly a trace of normal uterine tissue could be discovered. The whole organ was infiltrated with pus, which oozed out as sections were made. The tubes and ovaries were normal.

CASE II.—We saw in consultation a young woman, aged twenty-five years, who had been delivered of her first child four weeks previously. The labor, otherwise than being rather tedious and long, had been perfectly normal. Twenty-five days after the

confinement the patient had a chill, and the temperature went up to 39° C. At our visit we found the abdomen distended, the pulse 120, presenting the peritoneal type. The urine contained a considerable amount of albumin, and indican was present. Upon examination the uterus was found to reach nearly to the umbilicus. The cervix was soft, and the uterine cavity, which was greatly dilated, was found filled with brownish, fetid pus. In the right iliac fossa a large, purulent pocket was found communicating with the cavity of the uterus. This was opened by posterior colpotomy and explored, which resulted in removal of the débris of a fibroid tumor about the size of an orange, which had been compressed during labor and had undergone gangrene. The bits of neoplastic tissue were removed, the cavity was irrigated and thoroughly drained, and the patient made an uneventful recovery.

CASE III.—A woman, aged thirty-two years, who had been married five years, during which time she had had four miscarriages, all occurring about the second month. When seen for the first time a pregnancy of about four months, complicated with a fibroid tumor, was diagnosticated. About two weeks after seeing the patient she developed all the symptoms of a pelvic peritonitis, and in a few days gave birth to a child about five months old. About ten days after the miscarriage the patient had a chill, the temperature reaching 40° C., and the pulse was rapid and intermittent. This condition did not change, and as the symptoms of septicemia were rapidly increasing, we decided to open the abdomen. Laparatomy was performed, and we found a large, subperitoneal fibroid, which had contracted firm adhesions with the parietal peritoneum, the omentum, and intestine. Palpation of this large tumor showed that in certain spots it was fluctuating, and an incision was made over the most prominent point of fluctuation, which gave issue to about a liter of yellowish, creamy pus. On account of the extensive adhesions binding the growth, which would necessitate a very long and tedious operation for its removal, and could not be withstood by the patient on account of her very poor general condition, we drained the pocket and closed the abdomen. The patient, however, died in twelve hours after the operation. Unfortunately no autopsy could be obtained.

Here are a few other cases which I have found reported. The first is that recorded by Hegar, of a patient three months pregnant,

who presented a large uterine fibroid which had become softened and inflamed. Peritonitis developed and laparatomy was done, but the patient died three days afterward.

Treub reports the case of a woman, aged twenty-seven years, who for several years had presented an abdominal tumor which extended up to the umbilicus, but had never given rise to any pain. Menstruation had always been regular, and when seen she had been married for a year and was about three months pregnant. She then developed a peritonitis, and a miscarriage occurred five days later. There was a severe hemorrhage following this, which was controlled by ergot. A fetid vaginal discharge set in, accompanied by fever and a poor general condition. The tumor was found to extend above the umbilicus. Curettage under narcosis was decided upon, and at the same time to make a complete examination. The tumor was found to be solid, and no fluctuation could be made out. The uterus could not be mapped out from the tumor, so that in all probability it was a fibroid very intimately connected with the body of the organ. Curettage brought away a yellowish débris, and a diagnosis of gangrenous fibroid was made. The next day the abdomen was opened, but the adhesions attaching the growth to the abdominal wall and intestine were so thick and firm that it was considered dangerous to break them down. A median incision was made, extending along the entire anterior wall of the uterus, in order to enucleate the neoplasm, which was found free in the uterine cavity. The tumor was removed, the uterus and abdomen were sutured, and the cavity of the uterus tightly packed with gauze. The patient recovered in spite of two uterointestinal fistulæ. This was a case of fibroid tumor which had attained an advanced stage of necrobiosis.

Frommel's case was a woman in the fifth month of gestation. The fibroid, which was about the size of a fetal head, was inflamed and softened; peritonitis developed, and myomectomy was done. She recovered and was delivered at term.

Crofford reports the case of a woman in the sixth month of a pregnancy complicated with a uterine fibroid. The neoplasm surrounded the cervix like a cuff. Symptoms of infection arose, and as the fetal foot protruded it was seized and the child delivered. Infection, however, continued, and seventeen days later

the abdomen was opened. The neoplasm, which was gangrenous, was so adherent that removal was impossible. As much as possible was removed by the thermocautery, and the tubes were also removed. The patient recovered.

Bonipiani has recorded a case of a primipara, aged thirty-five years, who had a fibrous tumor in the posterior wall of the uterus. Artificial abortion was performed during the sixth month, after which the patient developed a pelvioperitonitis, but recovered.

There are a few rare instances of so-called spontaneous purulent disintegration taking place in fibroids during pregnancy, which are in all probability due to septic infection. I have only been able to find two cases—one reported by Krukenberg, the other by Cappil. In the first case the patient was suddenly taken with chills and presented symptoms of severe peritonitis. Miscarriage took place, and six hours after this the patient died. Necropsy revealed pus in the broad ligament, in the peritoneal cavity, and in the uterine cavity. In the second case there was an ovarian cyst, and on the right upper angle of the uterus was a fibroid, with torsion of the pedicle, which had resulted in gangrene of the neoplasm. From this condition there had resulted a local inflammatory change in the neighboring intestinal coils, with the result that the intestinal bacteria had invaded the growth and suppuration had resulted.

In some cases we get an edematous softening of the fibroid, which is followed by a necrobiotic disintegration. The edematous condition is usually due to hemorrhage into the neoplastic tissues, resulting in cystic formation. There results an engorgement of lymph, and if any chance for infection is offered after delivery the neoplasm becomes rapidly purulent.

Other complications due to fibroids may occur during the postpartum period, such as phlebitis, inversion or prolapse of the uterus, all of which appear to be infrequent; and this also may be said of eclampsia and rupture of the bladder, both of which are due to a prolonged pressure by the growth. One case I find recorded long ago by Depaul, in which intestinal compression occurred, the patient dying with all the symptoms of strangulation of the intestine.

DISCUSSION.

Dr. Edwin Ricketts, of Cincinnati, Ohio.—The plan suggested by Dr. Cumston is certainly unique, and yet I cannot agree with him as to the incision affording more advantages than a median incision, or, in a case of single pus tube, even an opening on one side, and in fact some operators now do not select the median incision, but go to the right or left. I have not made use of the method suggested by the essayist, therefore I cannot speak from experience. I simply speak from a theoretical standpoint. We know that what Dr. Cumston says is backed up by good judgment, yet I cannot take in the advantages that he holds out for this plan of opening the abdomen.

There is one point, however, that appeals to me in regard to this incision, and that is the possibility of not having hernia quite so frequently following its use. In this respect the incision may be advantageous; but otherwise, from a practical standpoint, I cannot quite agree with him. Theoretically, the incision appeals to me, but not practically.

Dr. J. Henry Carstens, of Detroit, Mich.—A year or more ago I saw a general surgeon make a transverse incision in doing a gastro-enterostomy for the purpose of operating on the gall-bladder. He had great difficulty in getting the muscles and fascia together on account of a tendency to retraction. Sometimes I have made an incision transversely from the outer edge of the rectus in removing kidneys. We have to cut through the muscles, but when the muscles are retracted it is very difficult to bring them together, and we will have a weak spot in that part of the abdomen. Cutting transversely across the muscles does not appeal to me. But as Dr. Cumston does not cut the muscles transversely, but only through the skin, I think the method is a good one. In those cases where we have to remove small tumors, and do not need to do a very extensive operation, this incision would be indicated. The scar would be very slight indeed. Still, nowadays by using fine catgut for the skin sutures and for peritoneum we do not have much of a scar left.

SARCOMA OF THE BREAST.

By EDWIN RICKETTS, M.D.,
CINCINNATI.

Virchow in 1847 introduced the term sarcoma. It is claimed by some that this disease is the result of connective-tissue proliferation from a matrix of fibroblasts of congenital or postnatal origin, adding that it is true that the different forms of sarcoma resemble more closely chronic inflammatory processes than does carcinoma; but we are not in possession of demonstrative proof of the microbic origin of sarcoma.

Gross tabulates 156 cases; Poulsen, 33. Of the round-celled variety, including the rare endothelial tumors, in 27 per cent.; giant cell, 5 per cent.; spindle, 68 per cent.; cystic form in spindle cells, 36 years; cystic form, 38 years, and solid form, 43 years. The nipple seldom retracts: Poulsen found it in 2 cases and Gross in 5. Poulsen operated on 14 cases of the cystic form, of which 75 per cent. remained well; 58 per cent. remained well over four years. Gross operated on 91 cases, of which 59 recovered and 32 remained well; for more than three years, 19; permanently cured, 20 per cent.

My friend Dr. David Riesman, of the University of Pennsylvania, has collected some statistics along with comments which I give with much pleasure.

Sarcoma of the breast is much less common than carcinoma. Roger Williams[1] analyzed 2397 tumors of the mamma and found only 94, or 3.9 per cent., to be sarcomata. During the last few years I have received for examination, from various surgeons in Philadelphia, 53 tumors of the breast. In 5 of these I have preserved no record of the microscopic features. Of the remaining 48, 29 (60.42 per cent.) were carcinomata; 14 (29.16 per cent.) were adenomata and fibroadenomata; 1 (2.8 per cent.) was a case of Paget's disease; and 4 (8.33 per cent.) were sarcomata.

[1] Diseases of the Breast, London, 1894.

Clinically, sarcoma presents itself as a diffuse growth which is sometimes bilateral or in the form of circumscribed nodules. The diffuse variety grows very rapidly and often attains enormous proportions. It has a tendency to recur *in loco* after operation and to spread by contiguity. But it is not prone to give general metastasis. In a few instances the neighboring lymph glands have been involved. Adhesion to the skin, with the function of superficial ulcers, is common. On section the growth is moist and resembles the flesh of fish. The presence of hemorrhages modifies these characteristics.

The diffuse, rapidly growing tumor histologically is generally a round-celled sarcoma. It is subject to mucoid degeneration and to hemorrhagic softening. The latter gives rise to large cystic spaces which contain quantities of thin, sanguineous fluid resembling Worcestershire sauce. Occasionally the veins are thrombosed, the thrombus consisting of a core of tumor tissue surrounded by a lamina of blood-clot.

The nodular sarcomata are usually much firmer than the diffuse, and, while tending to recur after removal, do not often invade the adjoining tissues; nor do they produce metastasis either of the lymph glands or of the general system. They seem to have their origin from the connective tissue about the milk ducts, especially those near the nipple. They often possess a well-defined capsule. Histologically they are either composed of spindle cells or are polymorphic; that is, are made up of several kinds of cells. The majority of the cells have a single large, vesicular nucleus, but in some two or more nuclei are found. Such multinuclear cells (small giant cells) were present in two of the four cases which I have examined. Bands of fibrous tissue commonly radiate through the tumor, at times producing an alveolar appearance that causes a close resemblance to carcinoma. The bloodvessels are of the characteristic sarcoma type; that is, merely endothelium-lined spaces without the characteristic walls of bloodvessels.

A cystic change is frequent in sarcoma, and is produced either by softening or by compression of gland ducts. In the former case the spaces are not true cysts and do not possess a wall lined with endothelium.

True retention cysts are a common feature. When they are present the tumor can properly be called cystosarcoma. Occasionally the sarcomatous tissue projects into the gland ducts and cystic

spaces in the form of branching papillary processes, which may even perforate the cyst walls. Various names have been applied to this variety of cystic tumor, as intracanalicular sarcoma, intracanalicular cystosarcoma, and cystosarcoma with intracystic growths.

Endothelioma of the breast is rare, but probably certain peculiar, plexiform sarcomata and angiosarcomata really belong to this class. Opinions differ as to whether endotheliomata are sarcomata or carcinomata; but the weight of authority, it seems to me, is at present in favor of considering them sarcomata. They grow primarily from the endothelium of the lymph and bloodvessels, the walls of which form an alveolar stroma, whereby a resemblance to carcinoma is produced. Similar tumors, springing from the flat cells of the perivascular lymph glands, constitute the so-called peritheliomata.

CASE I.—Miss F., aged eighteen years. I saw her in 1886 for the first time, with the following history: During the previous year she had noticed a growth that was very tender from the start, appearing in her left breast. When I saw her it was the size of an English walnut; axillary glands not involved. Nipple not retracted. Advised removal. This was done along with the greater portion of the mamma. Axilla not disturbed. The growth was submitted to a microscopic examination by Dr. Walter Gibson, which showed it to be a round-celled sarcoma. I was criticised by some of my colleagues who were present, and later on by one standing high in the profession, for removing benign growths, unnecessarily disfiguring a mamma of one so young. The argument used was that the growth had not returned, and therefore was not cancer, all of which is not without some force of argument.

CASE II.—Mrs. McS., aged sixty-four years; married; mother of three children. No specific history as to patient or husband. Thirty years before, and at the age of thirty-four years, she first noticed a hard, round, small "lump" in her right breast. Eight years after this she called the attention of her family physician, Dr. G. R. Ricketts (deceased), to it, exacting a promise that he tell no one. This was twenty-two years before its removal. He advised non-interference. He never saw the case or mentioned it until three days before I was called, May, 1897. In January, 1897, she had an attack of influenza, and was greatly prostrated from its effects, and from this time the tumor grew rapidly, being near the size of a child's head. On my visit I found her with

a tumor of the right breast which was about as ugly and vicious-looking a growth as I had ever beheld. The opening in the growth was large, and from it a dark, sanious fluid was discharging. The growth was so large that the right arm was forced to project well out from the body. Temperature and pulse were normal. Nipple not retracted.

After drying out the cavity it was packed full with 5 per cent. carbolic gauze. The surrounding skin was washed with soap and water, after which pure alcohol was freely applied. No enlarged axillary glands could be felt, especially after we removed the growth, which weighed twelve pounds. Although a large woman, we experienced some difficulty in bringing together the edges of the flaps. Axilla was not disturbed. There were two points of suppuration, but with the exception of this her recovery was entirely satisfactory. It is now nearly four and a half years since the operation was performed, and there is no evidence *in loco* or by metastasis of recurrence. Dr. P. C. Layne examined the growth, taking microscopic sections, and found it to be a large spindle-celled sarcoma.

CASE III.—Mrs. B., aged thirty-five years; widow; mother of two children; patient of Dr. Menefee, of Crittenden, Ky. She first noticed a "lump" in her right breast at the age of fourteen, which gradually grew in size. During the past three years she noticed that its growth was more pronounced. The nipple not retracted. The axillary glands were normal in size and not tender. The growth was the size of a child's head at birth, very tender. Movable. There was evidence of fluid in part of the growth. The growth was nodular. The tumor along with the entire breast was removed September 4, 1901. The axilla was not opened. Recovery was satisfactory. The patient did not lose flesh any time before or after the removal of the tumor. It was a fibrosarcoma, as proved by the microscope.

DISCUSSION.

DR. CHARLES GREENE CUMSTON, of Boston, Mass.—The question of operating on tumors of the breast at an early date is a settled one in my mind, and I believe that every neoplasm of the breast should be removed as soon as it is palpable. The limit of three years for malignant disease of the breast accorded as a sign that it will not recur is

erroneous. Just the other day I removed a small mass of axillary glands in a woman who had the Halsted or similar operation performed nine years ago for carcinoma. Recurrence took place. I extirpated three or four glands about the size of a pea. These would not have been discovered were it not for the fact that the patient fell down stairs, and it was suspected that she had dislocated her shoulder, and in making an examination of the joint I found these small glands, as she was a thin subject.

There is one thing which is not usually given very much attention, and that is chronic interstitial mastitis. This affection is observed more frequently in married than in unmarried women. The pathology of chronic inflammation of the structures of the mammary gland is not clear, but the condition is comparatively frequent. In well-marked cases a tumor is formed. A patient, thirty-three years of age, upon whom I operated recently, had a mass in her breast. She contracted syphilis from her husband several years ago. She had an enormous mass of glands in the axilla. I did not know what the previous diagnosis was, but my diagnosis was not malignant disease of the breast; it was syphilitic mastitis. I did the Halsted operation, removing the breast and a mass of glands as large as my fist. Microscopic examination showed the breast to be in a condition of chronic interstitial mastitis, and the lymphatic glands contained nothing but tubercles. I have never regretted removing the breast freely in all cases of chronic interstitial mastitis, believing that *it is a fertile ground for the ultimate development of malignant neoplasms.* I am inclined to believe that some of the cases of sarcoma of the breast that have been reported were in reality interstitial mastitis, for the reason that spindle-celled sarcoma can be easily mistaken for the interstitial tissue which one sees on superficial examination in interstitial mastitis. Briefly, I would conclude from what I have said, that in every case, no matter how young the subject, the growth should be removed freely.

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Dr. J. Henry Carstens, of Detroit, Mich.—I want to indorse the position taken by Drs. Ricketts and Cumston. I believe in early and immediate removal of any kind of tumor of the breast. I removed tumors from the breasts of young women twenty-five or more years ago, and there has been no recurrence. I have removed tumors which I considered fibroid. I have removed some of them later in life because they had developed into sarcoma. I had such a case within the last three or four weeks. Originally I removed a fibroid from the woman, where now a sarcoma had developed. The patient apparently had been perfectly well up to the time of the development of the sarcoma. I believe fibroid tumors will undergo such changes as will result in the

development of sarcoma, and I firmly believe the only place for a tumor of this kind is in a bottle of alcohol.

So far as a cure is concerned, I must say that I have not very great faith in our ability to effect a cure. I see patients that I have operated upon three or four years previously, and whenever I see them I always dread hearing them tell me that there is something developing again. I am never sure that a recurrence will not take place, whether it be three or seven years after operation. In cases of sarcoma, if there is recurrence, it is my experience that the recurrence is not as rapid as it is after carcinoma. It takes a longer time—say six, eight, or ten years—but there is always a liability to recurrence. Personally, I believe in the microbic origin of these tumors. It is to be hoped that some day we will get an antitoxin in which we will have more faith, so far as bringing about a cure is concerned, than we now have in the knife.

Dr. William H. Humiston, of Cleveland, Ohio.—I believe that a great many of the myomas of the uterus take on sarcomatous degeneration without apparent symptoms. I recall a case that I had last January. The woman was perfectly able to do her household duties up to the day of her first symptom of illness—retention of urine. A physician was called, passed a catheter, and withdrew nearly three pints of urine. In making an examination he found a tumor extending above the symphysis and a retrodisplaced uterus. She was forty years of age, and as yet had neither hemorrhage, pain, nor foul discharge. She was having her menstrual periods regularly. She was referred to me. I had her taken to the hospital, she was prepared for operation, and a total hysterectomy was performed. As is our custom, the uterus and tumor were submitted to a microscopic examination, and it was found to be a myoma undergoing sarcomatous degeneration. I was very glad I made a complete operation—total hysterectomy. She recovered promptly and left the hospital. When she returned to my office in May last, the vaginal vault was perfectly free from evidences of a return of the disease. She had gained several pounds in weight, and proclaimed herself well. I saw her again a few days ago, made an examination, and found a large mass in the vagina and another irregular mass was felt above the symphysis.

She entered the hospital for the second operation. I removed the sarcomatous mass from the vagina, opened the peritoneal cavity, and removed a mass as large as a hen's egg, that had its origin from the line of incision where I united the peritoneum at the time of the first operation.

This apparently simple myoma proved to be undergoing a rapid sarcomatous change, and without any of the usual characteristic symptoms

of myomatous or malignant growth. We have had three other cases of this nature, and I believe we cannot be too careful in our examination and prognosis in this class of cases.

Dr. Thomas B. Eastman, of Indianapolis, Ind.—With reference to the axillary glands in malignant growths of the breast, there are two points which occur to me. I fear that we are too much disposed to search for enlarged glands, and recent investigations have shown that the small glands may be full of carcinoma cells, while the much larger ones may be quite free from them. If we are going to investigate the glands at all, we may as well look for the small as well as the large ones.

Again, we are disposed to look into the axilla for all enlarged glands, and feel that if we can remove the mass of glands in the upper border of the breast we are safe, but lose sight of the fact that the glands on the inner side of the breast perforate the intercostal spaces and join with the lymphatics in the anterior mediastinum, and here we have reason for the very profound depression we often observe in these cases; hence, it seems to me it is well to emphasize the fact that we should look for glands on the inner side of the breast as well as for those which pass toward the axilla.

Dr. Joseph Price, of Philadelphia, Pa.—I scarcely think that many of us know very much from observation about one another's work in regard to this subject. Sometimes we are amused at the claims of originality that are made. For instance, cleaning out the axillary glands, as practised by surgeons at the Johns Hopkins Hospital. I saw Knowsley Thornton do a complete breast operation in London many years before the Johns Hopkins Hospital was opened, and he stated at that time that it was invariably his rule to clean out the axilla, no matter what the suspicion might be. It was his rule to remove all such tumors thoroughly and radically. This was the practice at that time in Philadelphia. It was taught in the medical schools that the axilla should be thoroughly cleaned out in malignant disease of the breast, and it has been my practice from the time of my first operation to clean out the axillæ. A distinguished surgeon said to me some years before the surgeons at the Johns Hopkins Hospital did the radical operation (Dr. Dudley Allen), that it was his rule to buttonhole the cellular tissue and fat high up and low down along the arm and strip toward the axilla, removing all glands, both large and small. That was practised in this city by a young surgeon before it was done at the Johns Hopkins Hospital. The claim made there of no recurrences following complete operations is an error. Some years ago, while returning from a meeting of the American Medical Association,

held in Memphis or in Nashville, I do not remember now which place, I happened to have a copy of a medical journal in which was reported the work done at the Johns Hopkins Hospital, mentioning the non-recurrences; but at Greensboro and Spartanburg two patients were boarding the same train, returning to Johns Hopkins Hospital with recurrences, while I was reading this paper.

What has been said about thoroughness and the complete method is of paramount importance in this line of surgical work. The percentage of sarcomas, I think, is an error. It is very much larger than 3 per cent. The cystic forms of sarcoma of the breast are common, and they are common in the class of patients alluded to by Dr. Humiston. Uterine sarcomas in spinsters are found about the fundus, and it is my impression that they develop from small fibroids. If we extirpate the uterus we will find a few small fibroids. I have removed a large number of uterine sarcomas from spinsters. These operations are numerous all over the country. I never hesitate to remove them, it matters not what the suspicion may be, whether they are malignant or not. If we have a patient in whom a tumor behaves badly, I would strongly advise the patient to have it removed. I never hesitate to remove any kind of tumor of the breast. I rejoice that this has been my inflexible rule. Patients are never satisfied until something is done for their relief. The husband of a patient is never happy until the tumor is removed, and if we can give sufficient assurance by referring to well-known patients upon whom we have operated for the removal of such tumors, the patient will usually consent to undergo an operative procedure. I recall the case of the wife of a most prominent bookseller in Philadelphia. Her breast was removed about fourteen years ago. I have had calls from as many as twenty members of the family in regard to the operation. She still lives, is happy, and is a prominent society woman. It makes a lasting and valuable impression upon the community and family when these growths are removed early and there is no recurrence. So from that standpoint alone these operations should be done early. Usually they are simple and unattended with any great danger.

Dr. E. Gustav Zinke, of Cincinnati, Ohio.—Do you remove the whole breast?

Dr. Price.—Always.

Dr. Carstens.—Suppose you have a girl ten years of age, would you remove the whole breast?

Dr. Price.—Yes, always.

Dr. Carstens.—Do you mean to tell me that you would remove the whole breast of a girl if she only had a fibroid tumor the size of a hazelnut?

DR. PRICE.—I scarcely know what you mean by referring to such little fibroids, because I do not see them.

DR. CARSTENS.—But I do see them. For instance, I have seen a girl, eighteen or twenty years of age, who has a small fibroid tumor which I can remove under cocaine anesthesia.

DR. PRICE.—Is it in the glandular structure?

DR. CARSTENS.—It is connected with the milk glands.

DR. PRICE.—I do not think I would remove the whole breast in such a case as that. I would be governed very largely by the case.

DR. JOHN C. SEXTON, of Rushville, Ind.—I am constrained to believe, from a limited experience, that sarcoma of the breast is not very rare. I have seen two patients, in one of whom there was rapid recurrence, with metastasis of the ovary of the same side. This case was undoubtedly a round-celled sarcoma, as was confirmed by Dr. Wynn, pathologist of the Indiana State Medical Society. Moreover, recurrence in the breast after a third amputation was then considered, and the patient treated with lymph toxins, which did certain good locally at the point of application, but the sarcoma continued to develop in the periphery around and away from the point of inoculation. The patient died.

The other case was an ordinary spindle-celled sarcoma, and recurred very promptly. I do not know whether I have a right to question from such a meagre record, Dr. Carstens, that sarcoma recurs late. I have been taught that sarcoma recurs just as quickly and promptly as carcinoma.

DR. CARSTENS.—A good deal depends upon the variety of the tumor. The melanotic tumor recurs quickly.

DR. HERMAN E. HAYD, of Buffalo, N. Y.—Anything Dr. Price says always interests me; but I would not like to see the information go out from this Association that Dr. Price believes in the complete removal of the breast in cases of very small tumors. That is absurd. It is dangerous teaching, because we have benign tumors in the breast the same as elsewhere, and it seems to me that unless Dr. Price modifies his remarks it is dangerous teaching to go out from this Association. If the age of the patient and the character of the tumor are such that there is suspicion in the doctor's mind that it is malignant, then all right. Take out the breast and open the axilla. But if the patient be a young woman, such as Dr. Carstens spoke of, it would be absurd to open the axilla in a case like that. It is not necessary, and I am sure the Fellows of the Association agree with me in this respect, and will take Dr. Price's enthusiastic remarks with a certain amount of qualification.

DR. MILES F. PORTER, of Fort Wayne, Ind.—I desire to put myself on record as believing that every tumor of the breast is suspicious and requires operation; that, in my judgment, any operation which stops short of the complete removal of the breast, with thorough cleaning out of the axilla, is not good surgery, and that time will prove the stand here taken to be correct.

DR. HUMISTON.—Dr. Porter's views are too radical. Small tumors in the breasts of young women can be removed readily under cocaine anesthesia. The growth removed can be submitted to a competent pathologist, and if it is found to be malignant the surgeon can then proceed and make a complete operation. If benign, the simple operation is all sufficient, and you have not sacrificed the mammary gland.

DR. CUMSTON.—I take issue with Dr. Humiston. There is nothing so dangerous as the report of the pathologist on many occasions. I have been led into error more than once in cases of malignant tumors of the breast by following the advice of pathologists, and the patients have died. Where we have a growth in the breast, no matter what the age of the patient may be, young or old, whether the growth be small or large, if we are going to take it out we should remove completely the breast, including the pectoral muscles. There is where the glands lie. We take out fat, and perhaps leave underneath and under the collar-bone diseased tissue.

DR. HUMISTON.—All cases are malignant, then, according to your statement.

DR. CUMSTON.—No. A fibroid in the breast is rather rare. What are usually called fibroids are not true fibroids. It is the pathologic condition I refer to, a chronic interstitial mastitis, which, I believe, in a very large majority of cases is the starting point of malignant neoplasms in the breast.

DR. ZINKE.—The reason I asked Dr. Price the question was because of an experience I have had with one of the distinguished surgeons of Cincinnati. I am free to confess that I have not only seen benign tumors of the breast in the past, but see them often now, and the women who have them are none the worse. I also know from communication with fellow practitioners that they have seen similar cases; at the same time, I wish to assert that it is exceedingly difficult for anyone of us to say definitely, before we have the tumor in our hand, or a section of it under the microscope, what the actual nature of it may be. The physician may, therefore, at times be placed in a very embarrassing position when called upon to decide whether a certain tumor of the breast before its removal is malignant or not. Several years ago a lady presented herself in my office with a small tumor in

the breast which was quite tender to the touch, freely movable, and its presence had been known for some time. She consulted me because it pained her of late when she touched it. There was no palpable enlargement of the axillary glands or along the tract from the breast to the axilla. She was about thirty-eight years of age and seemingly in perfect health. My advice was to have the breast removed. She thereupon consulted other surgeons, and among them one in whose opinion and skill as a surgeon I have the greatest confidence. He advised simply enucleation of the tumor, believing it to be a benign growth. The consultant being my senior in practice, I accepted his opinion and yielded the case to him. He performed a skilful operation, and I congratulated him upon his work, and frankly told the patient that if I had operated upon her she would now be minus one breast. The wound was slow in healing, and within about nine months after the operation the whole breast had become hard, nodular, was three times its former size, and the axillary glands were greatly involved in the morbid process. A Halsted operation was then performed and resulted in complete recovery. The patient is in good health at present.

There is a decided difference in these cases. All bear watching. As long as the tumor does not grow and is not painful we may permit it to remain, but as soon as it assumes any degree of tenderness, or shows a tendency to rapid growth, the sooner it and the whole breast are removed the better for the patient.

DR. PRICE.—I am very glad we all feel that everything said in this Association should be sifted and should go out well sifted before it is published broadcast for the edification of the general profession. We are discussing tumors of the mammary glands, not superficial or skin growths. It is not dermatology that is under discussion, as I understand it, but we are discussing tumors of the mammary gland, and my previous remarks were directed wholly to that question. Here I wish to make a brief allusion to the treatment of some of these cases by quacks. This type of practitioners resort to the use of arsenical paste in tumors of the breast, either malignant or non-malignant, and as a consequence those of us who operate on these cases encounter holes in the breast sufficiently large to hold an orange. Dr. Agnew made it an inflexible rule to remove these tumors of the breast to keep the patients out of the hands of quacks. He said that if he did not adopt that rule patients returned to him with holes in their breasts from the use or application of the arsenical paste, with general involvement, and he was doing hopeless or late operations as a result. Anyone who is familiar with the practices of quacks throughout the country has probably had

experience with just these cases. The little cysts in the glands or little fibroids in the skin are not mammary growths. Vaginal hysterectomy was practised early in the history of adenoma of the uterus, and these tumors are all extirpated throughout the country now, but they were not removed as frequently all over the country at that time. At present we are prone to be a little more aggressive. Some years ago I picked up a paper by Agnew which was read at the so-called Agnew Students' Society. A committee of the students called at his office and asked him to address them. Five patients were sitting in his office at that time with tumors of the breast, and he selected as his subject mammary growths of the breast, and he delivered a lecture on this subject to the undergraduates. I have had repeated opportunities of following that great man's work. Only a short time ago I removed an enormous abdominal growth, sarcomatous in nature, from a Germantown resident from whom Agnew fourteen years previously had removed a suspicious tumor of the breast.

My experience in regard to recurrences has not been that the recurrences all occur in the axilla. This comforts me in my own work. In four of my cases there has been recurrence in the transverse colon, and many of them have been in the abdomen. Years ago I removed both pectoral muscles; in short, I took away everything down to the ribs on that side. I have ceased to do that, as I find the recurrences are not in the pectoral muscles. They take place there exceptionally, indeed, and I think it is needless to cripple patients to that degree. Some of these patients tell us that they cannot comb their hair, and for the first six months after operation feel as though they had millstones in their sides. It is a horrible sensation.

Dr. James F. Baldwin, of Columbus, Ohio.—Is it proper to speak of cases in which we have secondary growths, coming on many years after operation, as cases of recurrence? Is it proper to speak of growths occurring at remote points of the body and at points having no connection with the site of the original disease as metastases? Is it not true that in these cases we have simply two points of primary growth? For instance, a number of years ago I removed a sarcoma of the ovary. It had a long pedicle, and there were no adhesions. For seven years the woman remained entirely well, when there developed a tumor of the kidney which I pronounced sarcomatous. Death occurred within a year, and the diagnosis was verified at the autopsy. This, it seems to me, was not a recurrence, but was an entirely new sarcoma of the kidney. Again, I recall a case of sarcoma of the right testicle. In this case the diseased gland was promptly removed, but several months afterward a tumor of the left kidney developed which I pronounced

sarcomatous. It was of large size and clearly inoperable. Death occurred only a few weeks later, and the autopsy verified the diagnosis. Here there was no direct connection between the right testicle and the left kidney, either vascular or otherwise, and we had, it seems to me, two distinct growths, and it would be clearly improper to speak of the growth in the kidney as a recurrence.

DR. CARSTENS.—Allow me to say a few words more on this subject. I am glad my friend Dr. Price has dodged the question a little. He referred to skin tumors, and said the subject of dermatology was not under discussion. If I understand the matter correctly, we were discussing small growths, small fibroid tumors, or small cysts, in the case of young women eighteen or twenty years of age. It is this class of cases I operated on some twenty or more years ago. I could report several of them did time permit. They have never had recurrences; they had benign growths. I did not take out the breasts, and I hold it is bad practice to do it. We have no business to ruin a young girl's chances. If she has only one breast her chances for matrimony are diminished, and we ruin her life unnecessarily. If there is any doubt in any case we can have a microscopic examination made of a section of the tumor that is removed, and then, if we find it is malignant, we can remove the breast afterward. Of course, pathologists make mistakes in diagnosis. So do you, Mr. President, and so do I. We all make mistakes. The microscopist does not make any more mistakes, perhaps, than you or I. We are all liable to err. That is the point I want to emphasize. I am not talking about women who are forty years of age. When such a woman has a tumor of the breast, I do not care whether it is benign or not, for practical purposes I *consider it malignant at that age*, and take out the whole breast, axillary glands and everything else. My previous remarks were directed to innocent young girls who go to school, and in such cases, with small growths, it is bad practice to take out the whole breast.

DR. RICKETTS (closing the discussion).—I am under many obligations to the Fellows of the Association for the liberal manner in which they have discussed this subject. Dr. Carstens spoke of cases of tumors of the breast in young girls sixteen or eighteen years of age. I want to call attention again to the fact that the growth in one of my cases was not a dermatological tumor, as suggested by Dr. Price. It was a tumor of the breast, and in it were found the round cells of sarcoma, and even though it was a round-celled sarcoma, the breast was not disturbed, and the patient has not had a return of the disease.

The argument presented by Dr. Carstens is one that we must not overlook in young women, particularly with reference to matrimony,

and it is from that point that I am thankful Dr. Carstens has come to the front. Undoubtedly, the chances of a young girl who has had a breast removed are greatly impaired from a matrimonial point of view. I recall one case in which a part of the breast was removed along with the tumor, and as a result, I think, the woman remains unmarried. If I had it to do over again I should only have removed the tumor, and as the patient was but eighteen years of age, I believe I would have done better work if I had simply shelled out the tumor and had permitted to remain that portion of the breast which I removed. It is the unexpected that happens many times.

In the three cases reported the axillary glands were not involved. Had the axillary glands been removed in any one of those cases I would have added great risk to these patients' lives. If these tumors are found to be malignant then the argument has been advanced that they should be removed. I will admit that it is true in patients who are well advanced in years, say thirty-five or forty, but never in young subjects, even with round-celled sarcoma. Let us give them a chance.

So far as this disease is concerned, from a microscopic standpoint, we are just as much at sea as we were in the days of Baron Larrey. I would rather have the opinion of a clinician any day, so far as the result is concerned, than the best microscopist in the land. When he makes his diagnosis the patient is generally beyond all hope; and I say again, that so far as the result is concerned in regard to the early diagnosis, the microscopist has not aided us one particle.

GALVANISM AS A REMEDY FOR UTERINE HEMORRHAGE.

By EDWIN WALKER, M.D.,
EVANSVILLE.

It is not without some misgivings that I present to you a paper on the use of galvanism in uterine hemorrhage. The views on the use of electricity in gynecology have been so extreme and divergent that it is difficult to ascertain the exact truth. The strong prejudice of surgeons against this remedy is not without foundation, as the results from treatment by electricity in gynecology have fallen far short of the claims of its friends, so that most of us are inclined to entirely disregard even the little that has been accomplished. Apostoli, more than anyone else, has studied the subject carefully and scientifically; and while his conclusions are by no means universally accepted, still they have commanded the respect of the profession by their accuracy and honesty. His methods are often severe, and even dangerous. When his work was first published, in common with others in this line, I gave it an extended trial, and, like others, have found it for the most part disappointing, in many instances extremely painful, and in some dangerous. It was not long before I came to the conclusion that galvanism could not supplant surgery in a large class of cases, as we were not sure of its results, and it was on the whole not less dangerous. I believe, however, it has a place in our therapeutics; and although it is not a large one, there are cases in which it will give greater relief with less danger than any other remedy. I have found it frequently valuable in cases of uterine hemorrhage.

Lest I be misunderstood at the outset, I wish to clearly state my position. Uterine hemorrhage being only a symptom, its cause should be sought and removed if possible. If it is endometritis the curet is the remedy; if a fibroid, it should be removed by

enucleation or hysterectomy, according to the location and gravity; if due to ovarian disease, surgical interference is indicated. I would not think of using galvanism where the diseased condition could be met with clean surgical interference.

This leaves a number of cases, the most of which would come under two classes: the first, those mild cases which do not endanger life or health, such as mild forms of endometritis or fibroids which produce no other symptom except the excessive flow. The second is quite a large group and embraces those which have some other disease or condition which contraindicates radical measures.

Many mild cases suffer little inconvenience from local trouble, except either excessive or long-continued flow of blood. If they have endometritis it is slight and causes them no inconvenience. Many fibroids, even of considerable size, are painless, and a physician is consulted only on account of the hemorrhage. Such patients will rarely submit to a radical surgical operation, and it is these cases which can be relieved, and in a considerable portion cured, by galvanism. I do not mean that fibroids can be removed by it. I have never seen a fibroid materially reduced in size by even strong currents, but hemorrhage is controlled and the patient at least rendered comfortable and symptomatically well. For fifteen years I have employed it in these cases, and failures have been extremely rare.

Of the severe symptoms extreme anemia is probably the most frequent. These cases have suffered from such excessive loss of blood that they are unfit to undergo any severe ordeal. In some of these I have had the hemoglobin sink as low as 35 per cent. and red corpuscles to 1,000,000. Such patients stand an operation poorly, and galvanism is here valuable in that it can control the hemorrhage until the patient can be put in suitable condition to undergo a hysterectomy, and many of them are rendered so comfortable that they will not care to go to that extreme. There are many cases of which the following is a type: the patient was forty-three years of age, and had suffered with hemorrhage for several years. She had become so much reduced that she was constantly weak, suffered with palpitation of the heart, and was extremely pale. Her hemoglobin was 35 per cent. and red corpuscles 2,000,000. She was the mother of seven living children, and did not feel, in her condition, that she could afford to run any risk, and therefore declined to consider a radical operation. She had a fibroid extending above the umbilicus.

A treatment extending over two weeks, in which eight applications of galvanism were made, completely relieved the patient, and now eight months or more have passed, and she has suffered no inconvenience, has gained in strength and flesh, and considers herself entirely well. She looks the picture of health. In cases with such a blood condition the mortality would certainly be very high from hysterectomy, and I believe in this case galvanism was safer treatment, and she may not require any other, but if she does her condition will be much more favorable.

We are often consulted by patients whose local trouble is secondary in importance to their other graver malady. For instance, a patient suffering with an advanced form of tubercle of the lungs or intestines, or with an advanced organic disease of the heart, or serious kidney lesion, is not a favorable subject for operation. There are many cases, too, which have grave diseases of the stomach and intestinal canal. In a large proportion of these cases, if an operation were done and the patient survived, she would be very little better than before. Except stopping the hemorrhage, her condition would be just as bad.

There is also a large class of nervous diseases or degenerations which are entirely independent of the genital lesions, in which it is a great mistake to do a radical operation; for even if the patient survives it she will not be benefited, but, on the contrary, is sent more rapidly down the road to grave neurasthenia or dementia. To my mind the saddest chapter in the history of gynecology is the treatment of nervous cases; operations based on the theory of reflex origin of disease, by those ignorant of the pathology of these diseases, led to disaster in most cases. I hasten to add, however, that this is past history, and these mistakes have led to much-needed reform.

I wish particularly to impress at this point the necessity of the careful diagnosis of all ailments of each patient, and, while we accurately ascertain the local departure from health, we also take into consideration the diseases of all other organs. By this means we are able to decide on a plan of treatment best for each individual patient. Operations which may relieve some local disease, while the patient, as far as her general health is concerned, is as bad or worse than before, do not add much to the credit of the gynecologist. These failures are generally due to insufficient study of the case.

We should not allow the patient to hurry us. Frequently the gynecologist is consulted in his office. An examination is made which takes probably fifteen or twenty minutes, or even more; then an opinion is given as to what should be done in the case. This, in most instances, is not sufficient observation, and we would do ourselves greater justice if we would insist that these patients remain under our observation one or two weeks, if it is necessary, in order that we can fully fathom everything that is wrong. I have in the last few years pursued this plan habitually, and often changed my opinion of the case entirely after an observation for a few days; and I believe the reason patients go from one specialist to another, getting a different opinion from each, is due to the fact that these men do not insist on having the requisite time necessary to make repeated examinations and to have a correct knowledge of all secretions and excretions, temperature, blood—in fact, avail themselves of all modern methods of examinations and observations in order to correctly diagnose these cases.

The method I have employed in the last few years in the application of galvanism for uterine hemorrhage has been quite simple. I have abandoned the strong current, as recommended by Apostoli, because it is painful and unnecessary. Mild currents can be borne in nearly all cases. I formerly measured the current by a milliampèremeter, but have been governed of late by the feelings of the patient. I use an intrauterine platinum electrode three inches long, and the shaft of the instrument is insulated and attached to the positive pole. A flat metal electrode about four by eight inches, covered with moistened absorbent cotton, is attached to the negative pole and placed over the abdomen. The current is then turned on until a distinct burning sensation is felt on the abdomen. Usually ten minutes is long enough for an application, but in some rebellious cases I have used it as long as thirty minutes. Applications are made at intervals of from three to six days, according to the effects, and it is rarely necessary to make more than eight applications. If a decided improvement is not made in three or four applications, some other treatment should be instituted, but this I have rarely found necessary. The patient is always given a bichlorid douche, and every aseptic precaution is followed in regard to the instruments used.

In conclusion, I would repeat, galvanism does not replace surgery

in the management of uterine hemorrhage, but in some mild cases galvanism has been successful in controlling the hemorrhage, and to that extent it is a benefit to the patient; and those suffering from other grave maladies can be treated by it more safely than by surgical interference.

DISCUSSION.

DR. C. C. FREDERICK, of Buffalo, N. Y.—I have not of late years had much experience in the use of electricity. I think, as Dr. Walker has said, electricity has, to a certain extent, been replaced largely by surgical procedures, because I think in the experimental stages the results of the use of electricity that were promised by a great many who were enthusiasts on the subject were not borne out. Practitioners met with poor success in its use, and in consequence they became disgusted with it, and abandoned it in a great many cases, and I think they are abandoning it at the present time almost entirely, and depending upon curettage and other surgical procedures to control hemorrhages. It is a well-known fact that a certain proportion of women who apparently have very little disease of the endometrium will be benefited for a few months, possibly one or two, by curettage and other lines of treatment, but who will not be benefited longer, and we may curet repeatedly, and still we will not secure any permanent results, and these patients will continue to have uterine hemorrhages. In that class of cases electricity should be used persistently in order to obtain any benefit from it. I am not an enthusiast in the use of it. I have used it some in that class of cases where I did not get benefit from curettage as a last resort. I must agree with the essayist that I have done more with electricity than by any other means I have employed for the relief of those patients. Even in some of those cases it has failed.

I wish to commend what the essayist has suggested in regard to watching patients closely before operating, watching them for several days, having the secretions examined, and carefully noting the condition of the patient from day to day. Unquestionably a great many cases are turned away with a snap diagnosis, which is either erroneous or partially so, and the patients consequently do not get the results of our riper and better judgment. I have formulated a certain judgment concerning some cases, but after a few days of careful observation I have been led to change my opinion very materially. I do not know

that I can say more for the use of electricity than this. I did not expect to be called upon to speak on the subject.

Dr. Herman E. Hayd, of Buffalo, N. Y.—I feel that Dr. Walker has given us an interesting and important paper. I used electricity for a good many years; in fact, I worked for five months with Apostoli, consequently I speak advisedly. When I take a retrospect, however, and look over the amount of good that was done by it in the treatment of pelvic troubles, and compare it with the amount of harm that has been done, I feel that it would have been the best thing for the world if physicians had known nothing about intrauterine galvanization. I say that, too, with a great deal of feeling, because when I was in Paris, Apostoli was particularly kind to me. I received at his hands social and professional attention. I saw him treat a great many cases, and I can say frankly he was a thoroughly skilled, scientific man and a splendid diagnostician. But, unfortunately, like many other men who confine themselves to one thing, he was an enthusiast. He treated his patients day after day, month after month, whom you and I could have cured in half an hour by operation, with two weeks' convalescence. When I returned from Europe I wrote a paper upon Apostoli's method, which was answered by Dr. Joseph Price. Unfortunately, electricity has been considered such a simple remedy in its ordinary application that it has been placed in the hands of ignorant and unqualified men; consequently the limitations that Apostoli put upon it have been disregarded by his so-called disciples and followers. I have found it of service in many cases. As to the therapeutic value of the positive or negative pole, it is absurd to question it. Any man who has had practical experience knows that the positive pole is hemostatic. It will stop hemorrhage. It is sedative. On the other hand, the negative pole is congestive, and will probably increase a hemorrhage and materially help resolution. But notwithstanding this, there is a very limited place for the application of electricity, as there are so many dangers associated with its employment intrauterine, and these are so great that I think it ought to be relegated to oblivion.

I am pleased to be able to say that Apostoli has left a treatment with us in connection with faradization. There, by reason of his studies, habits, and observations, and perseverance, he has developed the uses and application of the faradic coil. He has shown us that the longer and the more attenuated the wire the more sedative is the current, and in so far as he has developed faradic electricity he has done a great deal for medicine. The uses of galvanism, particularly intrauterine, I do not think will leave a very creditable monument for him.

DR. JOSEPH PRICE, of Philadelphia.—I was a little surprised to see that someone should write a paper on this subject, and I was glad to hear what Dr. Hayd has said in regard to electricity. Probably thousands of American physicians, at a great expenditure of time and money, left their homes, business interests, and families, to visit Paris for the purpose of spending some time in obtaining knowledge regarding electricity as a therapeutic agent under Apostoli and having him "O. K." hundreds of machines that were brought across the ocean to this country. It is said that at one time scarcely a transatlantic steamer made a trip without having several electrical machines on it that were "O. K.'d" by Apostoli. I have not a single professional friend that I know of who is using one of those machines at the present time. They are either in storehouses covered with dust or have been sent to junk-shops. These machines were formerly used by men like Stansbury Sutton, who uttered very strong words in regard to electricity in his previous papers. Sutton did good work with it when he adopted the Apostoli treatment, and he went so far as to say, "No more laparatomies." He devoted much time to it, and set aside large rooms in his hospital for its daily use and application. Now, I understand, all of those machines have been thrown into a corner.

Undoubtedly, Apostoli has done considerable good in treating cases with electricity. Other physicians have not followed the rules or indications laid down by him. Apostoli treated Americans very courteously. He is a gentleman, and has always treated Americans with all possible kindness and courtesy. I have never known anyone to criticise him or to say an unkind or harsh word about him. His patients say about the same thing, notwithstanding the fact that most of his American patients have since submitted to surgical operations. One prominent California lady spent two years in Paris with a fibroid tumor. She returned to America; she bled freely, and continued to to suffer more than ever. They telegraphed me, asking what I would come to California for and operate on this woman. My fee was too high. An Oakland physician removed the fibroid, and she recovered. He did the operation for a much smaller fee than I had fixed. The next patient was the wife of the President of the Norfolk and Western Road. She spent eleven months twice in Paris. She spoke French beautifully. She told me about the new machines, and of Apostoli having so much to attend to in approving machines for shipment to America. After spending twenty-two months in Paris, I did a section on this woman. In this case Apostoli was in error as to the diagnosis. The woman's trouble primarily was appendicitis, involving the right tube and ovary. It was not primarily tubal and

ovarian disease. It only shows, as we know from a large experience, how easy it is to err in our diagnosis as to the precise nature of the trouble in dealing with pelvic conditions. We have a physician in Philadelphia who sticks to the electrical treatment of fibroid tumors. I refer to Dr. Massey. I respect him for his enthusiasm and lasting confidence in his specialty. I believe he is honest in what he says, and there is no one, possibly excepting Apostoli, who has clung to his specialty as Dr. Massey has. I recall a very lovely, intelligent woman in Germantown, who had been delivered of two or three fine, big-headed children, frightfully mutilating her in her labors; her labors were difficult. She had been delivered by forceps, with good results. After the second or third operation for the repair of perineal and cervical lesions, she had a little discharge from the uterus that annoyed her, and she went to a practitioner in Philadelphia, who resorted to the use of electricity. Her uterus was perfectly smooth and symmetric in outline. She returned to me in the course of a year with her uterus studded with fibroids. In her case I felt that electricity had a great deal to do with the growth and development of the fibroids rather than preventing or arresting them. I have seen two or three such cases, and I believe the use of electricity bears some causal relation to the development of fibroid tumors.

Dr. J. H. Carstens, of Detroit, Mich.—I want to say a few words regarding this paper. I want to agree with the essayist about exercising great care in making the diagnosis. There is no doubt but that we sometimes make a snap diagnosis, but most of us are very careful in making diagnoses. I have had a number of patients and was unable to tell what was the matter with them. I have said to them plainly: "I do not know what is the matter with you, and you will have to stay in the hospital for a week or ten days. I must have your urine examined, your gastric juice analyzed, and a blood examination made." Of course, many patients do not like this; but if they do not, I tell them that they must go elsewhere. In other instances where we have a plain fibroid tumor to deal with we can easily make the diagnosis. It depends altogether on the case. This brings me to the point made by the doctor, where he spoke of using electricity simply for uterine hemorrhage, but he does not make his diagnosis of that hemorrhage. He properly said in his paper that hemorrhage is simply a symptom. Sometimes it is caused by the existence of a fibroid, and sometimes by a degenerated condition of the mucous membrane. There are various causes for it. If it is neither one of those conditions, and he simply has to deal with a hemorrhage, he uses electricity. In all cases of excessive hemorrhage from the uterus there is a cause for it, and

we should endeavor to make a diagnosis as to the cause of the hemorrhage, and not use electricity blindly. Sometimes the cause may be purely constitutional, requiring simply constitutional treatment. In other cases the hemorrhage may be indicative of beginning malignant growth, especially adenoma. If we advocate the use of electricity in these cases, and this knowledge is disseminated among general practitioners, that electricity is good for hemorrhage, the result will be that a great many cases of beginning cancer of the uterus will be treated for weeks and months by electricity, and the golden opportunity of removing the disease early and relieving the patient will have passed, and the diagnosis will finally be made too late. I rise principally to discourage the indiscriminate use of electricity for uterine hemorrhages unless we can positively exclude the various conditions I have mentioned.

DR. WALKER (closing the discussion).—I wish to thank Dr. Carstens for making a little more plain what I have already said. Of course, you understand that I use electricity in mild cases of endometritis or in conditions that contraindicate operation. I think all of us should avoid extremes, and while we criticise Dr. Massey and Dr. Apostoli in going too far in the use of the remedy, we should not go too far the other way. Even surgeons are sometimes extremely radical, and I think there are some surgeons who would profit very much more by studying their own mistakes rather than those of others. Time spent in criticism of one's own work is much more profitable than criticising the work of neighbors. I have a few patients upon whom I have operated, and thought at the time I was doing an excellent surgical operation, but those cases have haunted me ever since. I have under my care occasionally patients who have been operated upon by distinguished members of this Association, but they have not been treated any more successfully than Apostoli treated his cases. Let us criticise our own work rather than that of others, and I think in the end we will profit more.

RETRODISPLACEMENTS OF THE UTERUS IN YOUNG GIRLS AND UNMARRIED WOMEN—THEIR FREQUENCY AND BEST METHOD OF TREATMENT.

By HERMAN E. HAYD, M.D.,
BUFFALO.

POSTERIOR displacements of the uterus are universally recognized as being capable of producing many different and diverse symptoms, either from pressure upon neighboring organs or reflexly upon remote ones. In married and child-bearing women these displacements are very common, and are perhaps responsible for more suffering than often results from the more serious diseases of the tubes and ovaries. Modern pathology has taught us the importance of recognizing these displacements early, since they predispose to structural changes not only in the uterus and its lining membrane, but, by continuity of tissue, involve the adnexa. These deviations are no doubt the result of defective development of the organ, or they may be due to injuries inflicted during early girlhood—perhaps before or after puberty—to falls and to accidents of various kinds. They remained unnoticed because they perhaps produced no symptoms, and they were unsuspected until the uterus increased in size and weight and began to functionate. After a few periods came, symptoms and reflexes appeared, due to obstructive or congestive causes which interfered with the natural menstrual exit. It is fair to assume that a normal uterus with healthy appendages poised in a healthy body should perform its functions in a painless and natural manner, and, other than a sense of discomfort, nothing should mark the menstrual crisis. This Utopia of physical development is not often seen, because varying degrees of pain, from slight distress to the greatest agony, is the unfortunate picture of many of our girls, due to numerous causes, both constitutional and local. Various

forms of dysmenorrhea are graphically described by our writers on these subjects, and whether we accept these varieties under their special headings is immaterial. One thing is certain, that a malplaced uterus may sooner or later offer an obstruction to the menstrual flow, either on account of the flexion which exists, or the congestion and the associated thickening of the lining membrane. However, dysmenorrhea is not the only symptom seen in these cases, but there exist often severe backache and bearing-down pains, pains in the groins, and various reflex symptoms in the shape of nervous dyspepsia, irritable bladder, hysterical aphonia, fits, clutching at the throat, irritable heart, pain in the top of the head and nape of the neck, and various visual defects; in fact, there does not seem to be any limit to the widespread disorder of function which can be clearly and fairly traced to these malpositions.

There is a popular belief that so-called womb trouble exists only in married women, or women who have borne children or have had miscarriages or accidents of some kind, and I occasionally meet a medical man who is of the same opinion. As a result, young girls and maiden women are permitted to go on suffering for years and often into chronic invalidism without relief. Irreparable diseases of the tubes and ovaries result, and various radical and mutilating operations become necessary. Medical men have shrunk, and with some justice, from instituting vaginal examinations in young women, feeling that such examinations are often unnecessary—as their causes of ill health are more constitutional than local—and that they not only shock the highly sensitive nature of a modest young girl, but direct her mind to her genital organs. All this is true, but having once demonstrated that in a particular case the symptoms are either dependent upon or increased and accentuated by a possible posterior uterine displacement, an examination should at once be made by the rectum, and, if such a condition exist, then there is but one course indicated, and that is a curettage and Alexander operation.

A certain amount of reserve on our part has been highly commendable, and no self-respecting physician would make a vaginal examination in a young girl or woman unless a strong necessity existed. Experience has broadened our knowledge, and those of us who deal largely with the sufferings of womankind have realized that it is a crime to permit young girls to go on suffering and be

dosed with all kinds of medicines *ad nauseam* without a proper diagnosis being made of their troubles. During the past five years, and I may say since the general acceptance of the Alexander operation, I have been surprised to find how frequently young girls from fifteen to twenty years of age suffer from retrodisplaced uteri, and I have been delighted to know that a great many of these young women have been brought from conditions of nervous wrecks and lives of suffering and invalidism to good health by a properly performed Alexander operation. Before this operation was understood and surgeons had mastered its technic, there was little to be done to alleviate these young women. A pessary, which at best is a nuisance, can do very little good in this class of cases. They are not acute retroflexed uteri which need only to be held up for a few months, but most of them are retroverted, poorly developed organs, with ligaments permanently stretched and lengthened out. The introduction of a pessary is usually so painful that these young women shrink from their employment, and feel that they would sooner suffer the ills they have than fly to the weekly or bimonthly agony caused by the withdrawal and the introduction of these supports. Tampons, electricity, or any other non-operative measure can offer no permanent relief, and they are at most times painful and shocking measures. Many young girls and unmarried women have been compelled to undergo the operation for appendicitis, and as no examination for appendicitis can be complete without instituting at the same time a pelvic examination, either by the rectum or the vagina, these uterine deviations have been frequently noticed, and I have often wondered whether these malpositions had not contributed to the appendicial trouble, if not directly at all events indirectly, by keeping up a condition of ill health, with its associated bowel catarrh and constipation. Young married women who have never borne children and never had a miscarriage frequently come under our care, and we find them suffering from a retroverted or retroflexed uterus with or without tubal and ovarian disease. There cannot be any question that this condition existed before marriage, and that marital life simply lighted up and added to latent and dormant troubles; and had a diagnosis been made earlier and the uterus placed where it should have been, useful, happy, and fruitful women would have resulted from the union. The old maid and spinster, after she has gone the rounds of the stomach doctor and the nerve

specialist and the eye doctor, finally, after much personal persuasion, submits to a local examination after she is a broken-down neurasthenic with no physical force and less money. She is told that she has a tipped womb, and she submits to an Alexander operation, and even in many of these cases, late as it may be, an improvement to health and function results by placing her atrophied organ in a proper position, together with the curettage.

I cannot make any statistical calculation as to the percentage frequency of this condition compared to the number of women examined, but, looking over my list of Alexander operations, I find that out of my last fifty cases nine occurred in the unmarried, and eleven in those who never bore children nor had miscarriages; the youngest was fifteen years of age and the oldest forty-eight, and if we assume that only the greatest sufferers fell into my hands, because many of my cases are referred to me by other medical men, I am sure the number of girls and unmarried women who have malplaced uteri must be very large indeed; but, of course, in many persons it causes no trouble.

The treatment, as I have frequently said in this paper, is to perform dilatation and curettage and the Alexander operation. Never once have I failed to find the ligaments, although sometimes they were delicate and friable, and only once have I broken a ligament so high up that I could not get a further hold so as to complete the traction. I have, moreover, been surprised to find how large the ligament is in the young and unmarried, and I am beginning to doubt that married women have larger ligaments than single women, consequently the operation is just as easily performed in the one as in the other. Old cases of extreme retroversion, whether in the old or young, usually have thinner and more delicate ligaments, and they do not pull so readily out of their peritoneal covering, probably from adhesions between the ligament and the peritoneal envelope. Oftentimes the ligament at its pubic end or point of origin is so thin that only a few threads are found, but if these be carefully nursed and gently pulled upon, soon the larger and thicker fleshy belly comes into view, when stronger and more deliberate traction can be successfully made.

As I have said in previous papers, the operation consists in cutting through the skin and fat and delicate fascia, and thoroughly exposing the fibers of the external oblique; then definitely locate the external ring, usually a little above and to the out-

side of the spine of the pubes. Sometimes there is no definite opening with its little knuckle of fat, but simply an indefinite slit, but if the tissues be slightly pulled upon at this point a few fibers of the ligament can be felt coming through from the deeper parts. If the fibres of the ring be now nicked a little, the ligament will be seen to lie in the canal, perhaps with its accompanying nerve. It must, however, be understood that the ligament is always found and picked up at or in the ring, and the canal is never opened unless the ligament is broken or does not pull out satisfactorily.

Let me now conclude this paper by making these deductions:

1. A plea for the more careful examination of young women by competent and skilled men who can undertake any operative measures that are necessary.

2. Every case of retrodisplaced uterus in the young or unmarried or married woman may not require any treatment.

3. If they produce a definite symptomatology, the Alexander operation should be employed, if the case be an operable one; that is, if the uterus is freely movable and the tubes and ovaries are healthy.

4. Retroversions and retroflexions in the young and unmarried should never be treated by pessaries, but by the Alexander operation. Tampons and pessaries have their place in retrodisplacements in married women or women who have been pregnant, but they accomplish practically nothing in the displacements of young women.

5. The Alexander operation is safe and without mortality incident to the operation, and no harm can come from its proper performance; even if the uterus subsequently falls, the patient is no worse off than she was previous to the operation.

6. It does not in any way interfere with pregnancy and future child-bearing, but on the contrary materially helps the possibility of pregnancy.

7. No pain or distress follows the operation if the case operated upon be properly selected; and if pain and suffering result, there existed at the time of the operation latent tubal and ovarian trouble, which sooner or later perhaps would have required a radical operation. If it becomes necessary to do a celiotomy on a person who previously had an Alexander operation, the uterus will be found in its normal anteflexed position, which is necessary in every case, whether the tubes and ovaries are removed or not, to insure good health and freedom from future suffering.

A METHOD FOR THE SUSPENSION OF THE UTERUS.

By ROBERT T. MORRIS, M.D.,
NEW YORK.

THE methods for elastic suspension of the uterus which depend upon peritoneal adhesions artificially produced are not satisfactory, because of the absorption or elongation of the adhesions. A method which I am using at present consists in making a slit in the peritoneum of the broad ligament, drawing the round ligament out for three or more inches and then suturing the arms of the loop of round ligament together with chromic catgut. This makes a permanent shortening of the round ligament, to the extent of sutured area, but leaves enough ligament for elastic suspension of the uterus. The round ligament, shortened and sutured, is tucked back into the broad ligament slit from which it was withdrawn, and the margins of the slit are sutured over the included loop, thus burying it. The process is repeated on the opposite broad ligament and round ligament. The advantage of the operation is the securing of adhesions of muscular tissue instead of peritoneal tissue. The blackboard demonstration which I give illustrates the procedure.

DISCUSSION ON THE PAPERS OF DRS. HAYD AND MORRIS.

DR. EDWARD J. ILL, of Newark, N. J.—I have not much to say. I agree with what Dr. Hayd has said as to the method which should be used in fastening up the uterus, but that may not make a great deal of difference.

In referring to displacements of the uterus I wish to mention one form of displacement that the essayist did not speak of in his paper—possibly purposely avoided. It is that form of displacement where there is shortening of the uterosacral ligaments, a form so commonly

met with and so little spoken of, yet one which produces an immense amount of trouble. It produces local pains as well as much occipital headache, and incapacitates the patient to a great extent. This form of displacement does not need any such operation as is indicated here, except in the extreme cases. These cases usually yield to massage under ether and dilatation of the cervix. In these cases there will be but slight improvement gained by any operations on the round ligaments.

Dr. Willis G. Macdonald, of Albany, N. Y.—It is quite possible for a woman to suffer from neurasthenia without it being due to a retrodisplaced uterus. I also think it possible for a young and anemic girl to have dilatation of the stomach, and still not have, or even to have, a retrodeviated uterus which does not present symptoms. Unfortunately, all of these cases cannot be cured. In dealing with these conditions in young women I am very loath to begin anything like definite local treatment, particularly to undertake any surgical intervention in such cases. I do not believe that a uterus which is retrodeviated or retroflexed presents a condition which produces any very material local symptoms, and if it should produce any considerable group of symptoms it is due quite as much to disease in adjacent organs, as the tubes and ovaries; and I think physical exploration of the pelvis in these young women should not be undertaken except when extreme measures are desirable. If one carefully considers the histories of patients who are suffering and who have suffered from chronic pelvic inflammatory disease, he will find that many of them were young girls of sixteen years of age who had been subjected to minor gynecic procedures. A great many of these young women required changes in their mode of life. It was necessary to take them out of high school and put them out into the sunshine and air. It is necessary sometimes to treat diseases of the stomach and to begin to do something to give these young women a different nervous make-up than their mothers had before them, and who, too, frequently have undergone a good deal of gynecic surgery. I have seldom found it necessary to do an operation for the correction of a retrodeviated uterus when it has not been necessary to open the abdomen in order to do it. I recall a group of some half-dozen cases similar to the following: A young woman, scarcely sixteen years of age, presented local symptoms and many of the typical features referred to by Dr. Hayd, who had curettage done, who underwent an Alexander operation, both wounds having suppurated in the inguinal region. She was in bed for three months. There was an exudate on each side of the uterus, a full pelvis. It was a case that under ordinary circumstances

would lead me immediately to proceed to a laparatomy and sweep the pelvis clean of that young woman's genital organs; but because of her youth and the great misfortune which came upon her, which was due to meddlesome surgery, I resorted to double vaginal incision and drained a pair of abscesses. I have not much faith, however, in that procedure, the probabilities being in favor of its serving as a temporary makeshift.

Dr. C. C. Frederick, of Buffalo, N. Y.—I must dissent from Dr. Hayd according to my experience with the round ligaments—that is, judging from my standpoint. My experience has been that the ligaments of unmarried women and women who have not borne children, especially in thin, anemic, and neurasthenic young girls, under twenty-five years of age, are small and attenuated. It is difficult to sew them up in an Alexander operation and make them stay. I have done a good many Alexander operations in my time; the majority of them I have done on women who have borne children, and they have been successes. My principal failures have been in cases of women who have not borne children, and most of these have been young women. I do not do an Alexander operation on a young, anemic, neurasthenic girl. If I can hold her uterus up with a pessary I do so; otherwise, I will go inside of the abdomen and do some modified operation. I will not do an Alexander operation in such a case, because I believe it will fail.

Dr. Joseph Price, of Philadelphia.—This subject has been presented in an admirable manner, and it is one that should elicit a free discussion. It is really disappointing to hear Dr. Macdonald cover the ground he has in a general way, and not say what he has left many of us to say. If what Dr. Hayd has said in regard to the Alexander operation is true, a number of good anatomists and surgeons have blundered terribly in the operation. This operation has been given unusual study. I know from various sources a good deal about what has been going on in regard to the Alexander operation. Two good anatomists in Philadelphia told me that gynecologic surgeons of New York had left that city temporarily, without giving any excuse for it, for the purpose of obtaining more experience with regard to this operation on cadavers. They had failed in their operations on the living subjects, and they wanted to see what they could do on cadavers without their professional friends in New York knowing anything about the work. The operations on the cadaver, as a rule, have been failures, and some of the best gynecologic surgeons, and some of the best general surgeons who have adopted gynecology as a specialty, have given up the Alexander operation. I tried the Alexander operation very carefully and faithfully, and, at first, I fancied I had results

that were good. But later a study of the intraperitoneal round ligaments disclosed the fact that they had worked through the canal, and I decided it was a difficult operation, and in the majority of cases, when done anatomically, was a failure. In short, I have taken these ligaments in hernial operations in my fingers and in forceps, and pulled away on them as I would a pair of reins in driving a horse, and failed to bring up the uterus. While I had both groins opened for hernial operations I made those tests.

The operation described by Dr. Morris (intraperitoneal shortening of the round ligaments) is one that was recommended by Dr. C. A. L. Reed, and it is the operation I have always considered while removing pathologic conditions; and in cases of posterior displacement, bilateral disease, etc., it is a very good method; but Reed primarily made his transfixion below the round ligament, including an inch and a half or two inches on either side in his ligation, leaving the uterus in front and in good position. Usually we will find that the uterus remains in position after the operation recommended by Reed. The after-treatment that follows bilateral section will reduce the size of the uterus, and the atrophy will leave it in about a perfect position. It is an operation I commonly practice, and when I find a large, heavy uterus in the hollow of the sacrum I include an inch and a half or two inches of the round ligament in the transfixion, usually more on the right than on the left side. If we can deviate slightly to the right we favor a post-operative condition, which will make the woman more comfortable. If Dr. Hayd was to take one hundred of his Alexander operations performed on non-child-bearing women, with the common histories due to displaced uteri, who have gone through the neurologic and orthopedic hospitals, who have been curetted once or twice, and in whom mild and forcible dilatations have been practised, he will find that those operations will be unsatisfactory, and that 50 per cent. of the women will be found to have had a section performed in less than fourteen months following those two procedures. The neurologist, of all living men, is the slowest to give consent to the performance of a section at the present time. He is the arch-enemy of the gynecologist. Very few such patients have been permanently benefited by curetment. Frequently they are made worse. In short, in the history of these procedures I have failed to find a single patient who was benefited by either the Alexander operation or by curettage except in rare instances.

With reference to the use of pessaries, men like Grailly Hewitt, Smith, Gaillard Thomas, Hodge, Albert Smith, Wilson, and Thomas Addis Emmet, all the grand pioneers, were not fools in regard to the

use of pessaries in the treatment of posterior uterine displacements. Sitting at a dinner-table, I asked Dr. G. G. Bantock what success he had had with the pessary. "Well," he said, "some years ago there was a lovely woman in London who suffered very much from backache, pressure, and irregular hemorrhage from the uterus, and she moved to Cape Town. Her husband sent her back to London for treatment. Her uterus was retroverted. A Thomas pessary was inserted; before she left London her uterus was anteverted, freely movable, and normal in size and outline, and she had not the slightest discomfort. She returned to Cape Town, bore a healthy child, got up and about, when the same back symptoms manifested themselves, and after a few months she returned to London again for treatment. A pessary was again inserted, with relief. Thrice this woman returned from Cape Town for the relief of posterior uterine displacement. Conception followed the correction of the displacement each time with the Thomas pessary." I have heard about the same story from a large number of women treated by Emmet, Bozeman, and Campbell, of the South, who corrected displacements of the uterus scientifically and not by the walk-around treatment. These patients were put to bed. Exceptionally few gynecologists put their patients to bed for posterior uterine displacements. They err in this regard. The class of men who condemn the use of pessaries are those who own private hospitals. They are in the habit of using their private hospitals daily for operative work. Operative work pays, but the application or insertion of pessaries for the relief or correction of posterior uterine displacements does not pay very well. My own experience with the pessary and of putting patients to bed for the correction of these displacements has been very pleasant indeed. I put a large number of patients to bed for the purpose of correcting uterine displacements, having them occupy the knee-chest position. In some cases I have punctured the cervix freely to relieve congested hypertrophy, and in a few days reduced the uterus from four to two and a-half ounces, or from six to three.

With reference to infantile uteri, I question very much whether anything is accomplished in this class of cases by surgical intervention except that of extirpation, and very little is accomplished by that, whether the patients are married or single.

Dr. J. H. Carstens, of Detroit, Mich.—A number of points have been brought out in connection with this subject. I do not think Dr. Hayd meant to advocate the performance of the Alexander operation in a young woman with a retroverted uterus, and that by so doing all of the symptoms would disappear. We should take such a statement

in its broad sense, and I believe Dr. Hayd does this the same as we do. If we have a handsome young girl, who is a regular tomboy, who never heard or knew she had a uterus, and continually pound into her head that the menstrual flow is either too profuse or too scant, and that there is something the matter with her, she will soon get backache and other symptoms, and in the course of time these suggestions will be the means of bringing about a long train of symptoms that would otherwise not occur, and we should certainly discourage as much as possible the constant treatment of young women. It is not necessary for us to operate on every one of them. There is undoubtedly a tendency to attribute everything of which a woman complains to a retroverted uterus. If a girl has general ptosis of the abdominal viscera, and her stomach hangs below her umbilicus, and her kidneys are away down over her appendix, and everything else hangs down, you can stitch up the uterus by means of an Alexander operation, or fix it by any method you like, you are not going to cure her or keep the other abdominal muscles up. If she sits in a rocking-chair and does not do anything but read novels, goes to parties or balls in the evening, or sits up late at night, you will never cure her by an Alexander operation. Furthermore, if you have to deal with a poor, innocent girl who is wonderfully ambitious to learn everything, who wants to reform the world, whose mental capacity is limited, and who studies up to twelve or one o'clock in order to master her lessons for the next day, if she has a retroverted uterus you can stitch it by means of an Alexander operation, but you are not going to cure her. We ought to consider all of these things. We know a lot of them have retroverted uteri, and they do not know it. The retroverted uterus does not hurt the woman or interfere with her materially. There are other patients who have certain nervous symptoms, those symptoms we call neurasthenic, who would be materially relieved and cured possibly by putting in a pessary or performing an Alexander operation. It is very essential for us to make an accurate diagnosis before performing any of these operations. Personally, I cannot say that I see many cases of that kind. I see them once in a while, but they are very rare. Most of the cases I see are like those mentioned by Dr. Macdonald. They have been subjected to gynecologic tinkering; their uteri have been stretched and curetted. How rarely is it necessary to do this in young girls? What they need is a good beefsteak; make them walk a mile a day; instruct them to use dumb-bells and to resort to physical exercise. This is what they need, and not tinkering around the uterus all the time. Of course, there are some namby-pamby people who make me sick when I talk to them. I always take particular pains

to give this class a good lecture. I am in accord with Dr. Hayd, that in a certain number of cases it is a good thing to do an Alexander operation. It is a good method to keep the uterus in place when it is not adherent. But as soon as there are any adhesions, or as soon as there is disease of the adnexæ, this operation is not indicated. When we have patients coming to us with marked symptoms produced by uterine displacement we find usually a long train of complicated diseases of the pelvic organs.

Dr. James F. Baldwin, of Columbus, Ohio.—Dr. Hayd just nodded to me to say something on his paper. I have nothing to say in regard to his contribution directly, because I have never made an Alexander operation, and I presume I never shall. When this operation was first brought out I made it a point to examine the ligaments in all cases in which I made an abdominal section, and I found so many in which the operation would have been a failure that I have never made it.

I was much interested in Dr. Morris' diagram. I have used a modification of the method he describes for probably five years. I had supposed that it was virtually Dr. Mann's method, and I have been in the habit of dictating it as such to my stenographer after completing the work. Perhaps I am in error. Dr. Mann devised a method by which the ligament was brought up in this shape (illustrating), seizing the points with the forceps, the ligament doubled upon itself and the adjacent surfaces stitched. The objection to that operation, as Dr. Morris has pointed out, is that we have peritoneal adhesions only to depend upon, and they are uncertain. Appreciating that objection, I have been in the habit of scarifying the adjacent surfaces with a sharp pointed handle needle, such as is frequently used in closing the abdominal incision. This removes all the peritoneum very quickly, and the surfaces are then united by No. 1 chromicized catgut introduced with an ordinary needle and with an over-and-over stitch. This is done, of course, on both sides. The instrument devised by our colleague, Dr. Reed, accomplishes the same purpose, but does not remove the peritoneum. I never use silk in this operation. So far as I know I have had no failures by this method.

In regard to young girls, when we are not making an abdominal operation for other purposes, but where we have purely a retrodisplacement of the uterus in a neurasthenic girl, without the production of marked symptoms, no operation should be made, since the patient will probably be made worse by having attention directed to this part of her body. But in women who are not neurasthenic, whether young or old, in whom symptoms are present, with enlargement of the womb

from interference with venous return of blood, with leucorrhea, dysmenorrhea, etc., a vaginal examination should be made, and this will probably reveal a uterus retroverted and with a marked tendency to prolapse. Here we have a definite pathologic condition which should be relieved. In very many of these cases it is neither necessary nor desirable to open the abdominal cavity by a suprapubic incision, and I have in an increasing number of these cases within the last few years treated these patients by opening the anterior fornix, breaking up adhesions if they are not too firm, pushing the uterus up, and bringing its fundus forward. If the round ligaments are then found of fair size they may be pulled down and shortened; but if they are found, as they are likely to be, greatly attenuated from overstretching, the uterus should then be brought forward and its anterior wall fastened by two catgut stitches, introduced so as to close the incision and thus attach the uterovesical fold at a higher point. In this way the uterus is brought forward into proper position and held with its center of gravity in front of the base. The support thus afforded seems to be as physiologic as that afforded by the round ligaments. In many of these cases doubtless the round ligaments recontract after a while, and thus assist in giving the uterus proper support. I have made this operation many times. It is by no means an easy operation, especially in a woman having a small vagina, but with a little practice a gynecologist will find the difficulties easily overcome. Many women will readily submit to this operation who would object strenuously to an abdominal opening. The operation is done rather quickly, and convalescence is very short. Usually there is some endometritis in these cases, with leucorrhea, and the operation should be preceded by a thorough curetting.

Dr. William H. Humiston, of Cleveland, Ohio.—The question of retrodisplacements of the uterus is an interesting one to gynecologists, and in treatment we are all guided by our experience and results. I have studied the Alexander operation very thoroughly. I went to Liverpool to see him perform it; but, unfortunately, he had no cases that week to operate, but he showed me several of these cases upon whom he had operated. I was much interested. After coming home I did several of these operations. I watched them carefully, and in six months' time the fundus of the uterus was back in the cul-de-sac. Since then I have not had any use for the Alexander operation, for in simple uncomplicated cases it is unnecessary, and in those cases complicated with diseased tubes and ovaries it will not bring relief.

After a large experience with cases of retrodisplaced uteri I feel that in those that have existed for any length of time we have

passive congestion which has produced a diseased mucosa, and if there is a free discharge I curet the uterus. I puncture the cervix when cystic and enlarged. I put the patient in the knee-chest position; I take a Sims speculum, retract the perineum fully, and I push the fundus well forward. Then, and not till then, do I insert a pessary, while she is still in that position. I use a pessary just as you would use a crutch, temporarily, to hold the uterus in place, and I expect to remove it after six or ten weeks. The majority of patients get along without a pessary after a period of three months, and in uncomplicated cases the uterus will remain in position. If it does not, I have found that diseased adnexæ was the chief reason why it did not remain in position, and a radical operation was indicated.

Dr. Hayd (closing the discussion on his part).—The discussion has been very interesting to me. I expected some criticism from Dr. Macdonald, but really we do not disagree in the main. If I came before you with all the eloquence and all the rhetoric of my friend Dr. Macdonald, with his beautiful platitudes and smoothly rounded sentences, I should not expect to persuade you that every neurasthenic woman had a tipped womb, and that every young girl who had a retrodisplaced uterus manifested symptoms. I think you are too intelligent for that, and I did not expect such remarks from Dr. Macdonald. If he had listened attentively to my paper he would have seen that I was particularly careful to assure you that every case of retrodisplacement of the uterus did not require treatment. Moreover, the paper was devoted to the treatment of retroversions in young girls and unmarried women, whose symptoms, as I said in the paper, are often due to many other causes, constitutional and local. I do not believe for a moment that he would have you think that I would operate on one of these unmarried girls, or on one of these young married women, without having first placed her under the very best environment and under the very best hygienic conditions, which would, in all probability, in many instances have relieved the symptoms. But having failed to relieve these symptoms by all the so-called conservative measures which he employs, and which you and I can employ, and at the same time having demonstrated to my satisfaction that they have retroverted uteri, I operate, as nothing short of an Alexander will cure retrodisplacements in women who have neither miscarried nor borne children. I have placed them in bed and applied pessaries, and I relieved their symptoms, but the uterus always falls back when the pessary is taken out. A good deal depends upon making an accurate diagnosis. Having made a diagnosis, and believing that the symptoms are all due to the retroverted uterus, I approach the question

from two standpoints: first, is the uterus the cause of the trouble? and second, if the cause, will not serious tubal and ovarian mischief result if the position is not rectified? To those of you who do not agree that the Alexander operation can be performed satisfactorily I have only to say that you had better try it again, or put yourselves under the instruction of some man who can do it without any difficulty, and who does not have more than about 10 per cent. of failures.

This is not a mutual admiration society. I am always glad to listen to Dr. Price, because he has been my teacher, and a good deal of the knowledge I possess I obtained from him. But, like many other precocious young fellows, I have departed in some respects from his teachings. Many other men disagree with their teachers regarding certain points. Many pupils can teach their teachers something, and this will apply to the treatment of some cases of retroverted uteri. When it comes to doing plastic work I do not think there is a man in America who surpasses Dr. Price for beautiful work in this particular. I think, however, I can teach him something in regard to the Alexander operation, and I assure him that it is possible to sterilize catgut. It is, likewise, possible to catch the ligament, and, with the assistance of gloves, there will not be any pus in the wound. I have the same feeling in reference to the Alexander operation as Mann, Mundé, Noble, as well as distinguished members of our own Association who recognize its value. I am sorry for Dr. Price.

Some years ago, when I was one of the surgeons at the poorhouse, I devoted a good deal of time to the performance and technic of the Alexander operation. Dr. Frederick and I worked there together. We tried the operation on a good many cases. Occasionally we found the ligament, but more often we did not. For a number of weeks he and I went there and operated on cadavers. As I have said, sometimes we were able to find the ligament, but often we did not. We then did not know how to do the operation. That does not militate, however, against the fact that the Alexander operation can be successfully performed, and that it is a very simple operation, and if done properly, brings beautiful results. Two of the most celebrated operators in New York invited me to see them do this operation, and in doing it one broke one of the ligaments, and the other did not find them at all. It was simply a question of technic. There is no reason why in Dr. Humiston's cases the uterus should fall down, if he is particularly careful in having his patients wear a support some weeks after operation until strong adhesive union takes place, so that he does not expect the tender ligaments to hold up the uterus. If this is done

he will have a very large percentage of cures, at least 80 to 85 per cent., and more.

I agree with those men who say it is a serious matter to institute examinations in the cases of young girls, but it is also almost criminal to allow a young woman go on indefinitely suffering, and not have a diagnosis made. These cases are often treated for other diseases, because we do not institute a vaginal examination. I hope it is not to be understood that I would suggest unbridled license in making these examinations in young women. These examinations should be made by qualified men who are capable of instituting whatever procedure may be necessary, surgical or not, and only when their symptoms are of sufficient importance.

Much of what Dr. Price and others have said relates to operations in the abdominal cavity. Of course, I assume that everyone of you is familiar with the conditions necessary for the satisfactory and successful performance of an Alexander operation. First of all, we must have a movable uterus. Secondly, there must be healthy ovaries and tubes. Now, if a man says that it is not possible for us to make such a diagnosis, he ought to be ashamed of himself. It is possible for us in the great majority of cases to make a diagnosis; but occasionally a tube might be closed. A cyst or any well-defined collection or a mass would not be overlooked. Occasionally there may be some adhesions, so that the operation afterward might be a failure in so far as relief from pain and distress is concerned. You have not hurt the patient; her uterus is where it was intended to be. You can go in and mutilate afterward, *per abdominem*, if you like, or cure her, as the case may be.

Dr. Morris has depicted an operation by which he does away with peritoneal adhesions; but, unfortunately, he is giving us an abdominal wound where he is making the possibility of peritoneal adhesions. He has the possibility of adhesions of the omentum and of the bowel, no matter how carefully the work may be done. Therefore, it is only when a woman is seriously sick that the intra-abdominal operation should be employed, when there is some tangible trouble with the tubes and ovaries; not otherwise. It is true the personal equation enters into the consideration of all our cases, but there is no reason why we should not cure at least 80 per cent. of these cases by the Alexander operation when properly performed. There should be 80 per cent. of successes at least following this operation. When I say successes, I do not mean the relief of all symptoms, but I mean that the uterus will not fall. These patients may have various other reflex symptoms which none of us are able to eliminate or relieve. They

may be simply associated with a retroverted uterus or perhaps a diseased rectum, and until we get the uterus or rectum in a healthy condition we do not know how much they are contributing to the trouble. However, when these organs are normally placed and healthy, we can then look for other sources of reflex disturbance in obscure cases. It may be the nose, the eye, a floating kidney, or what not.

DR. MORRIS (closing the discussion).—The subject has been discussed so freely that most of the points have been brought out during the debate. I was asked why I used silk in this operation. I find that a fine strand of silk will not split the muscular structure which in the round ligament is so delicate. So, on that account, I have been using silk more and more in these cases.

DR. RICKETTS.—Have you had any trouble with these operations so far?

DR. MORRIS.—Not as yet. I have not used silk much in my surgical work. I began the use of catgut with Dr. Lange, in Bellevue Hospital, in 1882 or 1883. I have depended on catgut almost exclusively during all my active surgical experience, with the exception of occasional experiments with kangaroo tendon, which is good, but expensive, and silkworm-gut, which is sometimes good and sometimes disastrous. Silver wire I use regularly in my bone surgery, and here and there silk. In all operations upon the stomach and bowels I use silk, for the reason that the gastric juice and sometimes intestinal secretions digest the catgut if we penetrate the parenchyma of the organ. If we can confine our sutures to the muscularis and peritoneum there is no danger of injury to the catgut, but if we penetrate the parenchyma of the organ, then the catgut may be digested. I lost one case of gastroenterostomy directly on account of the catgut being digested. At the postmortem I found that the digestion of the catgut in the mucosa was complete. Since that time I have used silk in practically all of my stomach and bowel work. My experience of silk aside from that is limited indeed. I have operated a good many times for the after-results from the use of silk—that is, in taking out silk knots. I have hunted in various regions for silk that has been employed by other surgeons, and have in other cases searched for silkworm-gut knots that were my own infliction. After one of our prominent New York surgeons read an elaborate paper on silkworm-gut I depended on his authority, and used it extensively in a series of cases for months. I operated on twenty or more abdominal cases, using silkworm-gut. This gentleman subsequently wrote a second paper, in which he stated that he was very sorry for having written the first

one. During the next three or four years I took silkworm-gut knots out of the abdomens of my patients. The subject of sutures is rather irrelevant to this discussion.

Dr. Baldwin spoke of the operation I have described as being similar to that recommended by Dr. Mann, and Dr. Price spoke of it as being Reed's operation; but, as they say later on, those operations give peritoneal adhesions, and that is what I avoid. Dr. Baldwin's modification of the operation is further toward the ideal management of these cases; but, so far as I can see, the entire separation of the round ligament from the peritoneal covering, the complete approximation of muscular and fibrous structures only, and then burying this loop beneath the peritoneum, give, so far as my experience goes, a very satisfactory procedure, and one that I have not seen described by others, although one is apt to find that others have thought of the same thing in almost any surgical procedure.

Dr. Hayd, in his final remarks, dwells upon the advantage of not opening the abdominal cavity, and said, incidentally, we have adhesions after some of the simplest cases in which we open the peritoneal cavity. I want to say a word about that. In most cases in which I have had occasion to shorten the round ligaments by the Alexander operation I have thought it best to open the peritoneum. I usually go through the external oblique aponeurosis at once and pick up the round ligament, and my reason for doing that is because I can lift the branch of the ilioinguinal nerve out of the way, and that is an important thing. If we do not do that, and the nerve is compressed or pulled upon, the patient has trouble, and may suffer a great deal if the nerve is involved in the sutures. On that score I split the aponeurosis of the external oblique, stripping back a cuff of peritoneum. Having done that and pulled the round ligament out as far as I wished, I have introduced my finger into the peritoneal cavity for the purpose of separating any adhesions and loosening the attached fimbriæ for the purpose of puncturing cysts or in doing further work with the ovaries requiring attention. It is quite true that in some of the simplest cases in opening the peritoneal cavity we have adhesions following which cause a great deal of trouble. This is a point on which I am doing work at the present time, trying to make some original observations, and I hope that other members of the Association will follow up this matter of perineal adhesions after simple operations. They do occur, and in a certain number of cases apparently as a degenerative process. When we open the abdomen we cause a local leukocytosis of the whole peritoneal membrane. Usually there is a crowding of leukocytes in the lymph spaces, and there may be desquamation of superficial epithelium.

There is no literature on the subject so far as I know. I have been at work some months on this matter, and I have not been able to find any important literature as yet relating to it. There is a good field for new work in finding out why these adhesions occur, in what class of cases they do occur, and the character of the degenerative process.

I have a typical case under observation now that I expect to operate upon on Saturday. The patient, a young woman, has been operated on three or four times. She was operated on for appendicitis by a surgeon whose methods are as near perfect as they can be, who used catgut, and who uses no chemical antiseptics in the abdominal cavity. After the operation for appendicitis the patient suffered from adhesions. There was no infection of the appendix, but the organ contained concretions. At the time of its removal I separated adhesions in the region of the appendix which involved a loop of the ileum. I treated the adhesions by the aristol-film method, and six months afterward she came back again and had taken up the morphin habit. The adhesions were relieved over the area in which this method was applied, but the new area of adhesions extended over several loops of ileum and colon. She is coming back again for an operation on Saturday, because she has more adhesions. Here is a case operated upon by men who are particularly careful about disturbing the peritoneum, but in which we have a degenerative process going on in the peritoneum following the opening of the peritoneal cavity in the simplest way by quick operations. There can be no doubt but that we have cases of this kind. We, likewise, have cases of lesser degree in which patients become irritable and fretful, who are not going to praise doctors after a simple operation because of secondary peritoneal adhesions. The point Dr. Hayd makes is a good one, but one that is not given enough attention by us in discussing these subjects.

DISEASES AND INJURIES OF THE CERVIX UTERI AND THEIR TREATMENT.

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The present decade marks a period of unusual progress in gynecology. Within the memory of many of us section of the abdomen was regarded as an operation of the most hazardous nature, and never undertaken except for large cystomata; now we feel free to operate for all lesions of abdominal and pelvic viscera. The gynecologist has also interested himself in the pathology of the uterus and its adnexa, and, as in every research undertaken by man, the deeper and more accurate the study the more it unfolds to him. This applies equally well to cervical pathology, to which my essay more particularly refers.

Some writers refer to the cervix in a most indifferent way, as though it could scarcely rise to the dignity of a discussion in the realm of woman's diseases—perhaps because they are not so much interested in delicate plastic work as in heroic work; while others freely acknowledge the delicate nerve structure of the cervix and its intimate connection with the sympathetic system, although it may be physiologically more active in some women than in others. In the earlier days of Emmet and Sims it was the general impression among gynecologists that the repair of injuries due to parturition was about all the attention to which the cervix was entitled. By degrees we have learned that it is the *entrepôt* to the generative system of a great proportion of the graver ailments to which the female is subjected, either by injury or by contagious or infectious diseases, and that the sequelæ are found enumerated in the multiform nervous reflexes which slowly and stealthily fasten themselves on the unsuspecting patient.

I do not base my statement on a few chance cases, but on a study of hundreds of cases and running over a long period of time devoted to special work. Nor do I undertake to assume that *all* the reflex nervous conditions found in gynecologic practice take their origin in the cervix, for we know the contrary to be the fact; but the absolute demonstration that the condition of the cervix is often the initial starting point of grave disturbance in these cases leads to this discussion.

If the cervix is not the objective point for our interference, why is it that so large a proportion of these grave cases return to good health after operations properly performed?

The evolution of cervical troubles takes place through two main causes: first, those incidental to carelessness or disease in earlier life, such as improper care and exposure at a menstrual period, or through the effects of the exanthemata—scarlet fever in particular, which often expends some of its poisonous effects on the genito-urinary tract, including the uterus as well; second, those causes which are incidental to married life, such as injuries during parturition and infectious contact. Too little attention has been given to one fact, that the poison of scarlet fever often attacks the mucous surfaces of the vagina and cervix, as it does other mucous surfaces in the body, and that being unnoticed and uncared for, leaves a permanent catarrhal condition of uterus and vagina, the effects of which are unfolded later when menstrual troubles begin to arise, or in early married life. These results may, and probably do, cause many of the cases of dysmenorrhea, chronic endometritis, and tubal disease seen in unmarried girls. It is also a frequent cause of diseased and hypertrophied cervices and Nabothian glands, causing the hard, unyielding, and undilatable cervix which lacerates during parturition. Complete stenosis of the cervix with retention of the menstrual fluid in young girls is probably more frequently caused in this way than in any other. The same may be said of atresia vaginæ, and also of certain so-called cases of double vagina, in which a septum divides the canal a greater portion of its length; also of imperforate hymen. Probably many of these are caused by the juxtaposition of inflamed and infected surfaces.

Lacerations of the cervix are exceedingly frequent; some are slight, heal readily, and leave no after-trouble; others are deep, beginning even at the internal os, occasionally causing alarming

hemorrhage from the circular artery, and leaving the open vessels and lymphatics exposed to septic infection. This infection may involve the whole uterus—may extend to the broad ligaments—may be fatal; but if these cases of sepsis go on to convalescence, there remains not only the serious condition of the cervix, but also a subinvolution of the uterus, the precursor often of displacements with varied pelvic and vesical distress.

Our patients frequently endure these discomforts either from modesty or from the belief that it is woman's lot, so that the gynecologist is not consulted until, broken down in general health and suffering from the reflex nervous conditions incidental thereto, they appeal for help. If we consider the average length of time before this class of cases presents itself for treatment, we find that in cities it is over three years and in the country from four to five years; in many cases three times such a period of time elapses before a rational method of relief is obtained, thus giving the injury time to work its worst on the normal structure.

In some constitutions disease attacks an injured part more readily than in others; consequently there can be no limit of time when the injured cervix may not be invaded with permanent disease, and when once this disease, whatever its nature, has established itself in the cervix, we are often surprised at the multiplicity and gravity of its reflexes. It is a source of additional surprise that in so large a proportion of these graver cases of reflex trouble the patients themselves are ignorant of the fact that the initial cause is pelvic.

I refer now especially to cases of long standing, where the normal structure has become pathologic in character, both superficial and deep; where the glandular structure, the mucosa, the deep follicles, and especially the area adjacent to cicatricial growths have become involved to such an extent as to render improbable any return to their proper or normal functions. Such cases might be cured by Emmet's operation, if treated early enough; that is to say, if the operation were performed before extensive, deep-seated, degenerative changes had taken place in the cervix. It is conceded that certain of this class of cases would be benefited by Emmet's operation; still, after the repair, much diseased structure would be left, as the whole cervix is then involved, and this would be in itself sufficient to keep up much of the former pain and nervous distress. Those who have operated for cervical disease for many years will

doubtless bear in mind cases where the work of repair had from its apparent perfection seemed to be successful, but weeks and months brought little or no comfort to their patients. We know that it is absolutely necessary to success in trachelorrhaphy to remove all the cicatricial tissue before the sides of the tear are re-formed and coaptated; this exsected tissue is pathologic. Then, in cases of long standing and with more serious and extensive pathologic conditions, why should we not remove all that is diseased? Why repair the laceration only? There is no more danger in one operation than in the other. I can say that I have never had the slightest unpleasant complication following an amputation of the cervix; but I can hardly speak so well regarding some of my cases of trachelorrhaphy. In some of them the subinvolution was so pronounced as to simulate tumors. I have found a more positive reduction of such conditions to follow amputation of the cervix than occurred after simple repair; so also has much pelvic tenderness been removed, due probably to overweighted ligaments or sympathetic congestions.

A study of the neurologic conditions which are sequential to diseases and injuries of the cervix is both necessary and instructive. They vary according to the temperament of the patient and the gravity of the disease. The worst forms are found in the attacks of gastralgia, angina pectoris, basic headache, cephalalgia, insomnia, and mental depression with marked suicidal tendencies. It may be cited that grave nervous complications often accompany diseased conditions of the ovaries. This is true; nevertheless, such conditions are more likely to be attended with local pain than remote, and less likely to experience the overwhelming nervous conditions referred to than in cases of purely cervical trouble. Hegar speaks of these reflex symptoms or hysteroneuroses as mainly due to the ovary; so does Tilt. Schröder goes so far as to advise the removal of the ovaries for relief of urgent symptoms, even, as he states, if disease of the ovarian tissue cannot be detected. In reply Engelmann says: "The uterus he (Schröder) ignores, and yet the great mass of cases which I have described as hysteroneuroses, and proved to be such by their disappearance upon treatment of the uterine disease, were mostly referable to the uterus and very few to the ovaries."

I most certainly indorse Dr. Engelmann's position here; and while years have elapsed since he so wrote, time and the observa-

tions of many of our ablest gynecologists have demonstrated its truth. It is not the ovary but the uterus itself which is the *fons et origo* of the trouble. He says further: "Undoubtedly these phenomena are determined mainly by the influence of the ganglionic nervous system; to the uterine ganglia an irritation of the terminal fibers is communicated, and thus the link is established by which the impulse can be directed toward any of the functional organs of the body, all organs of nutritive life being supplied with ganglia or a ganglionic plexus. The largest is in the pit of the stomach—the solar plexus—hence gastric neuroses are the most common, distention of the stomach, nausea, faintness, perverted appetite, and the like. The vagus, itself an important tract, is in direct connection with the ganglionic centers, and carries the uterine impulse to the heart, lungs, and stomach; and no reflex, next to the gastric, is more common than the cardiac—palpitation, pain, and all the symptoms of heart disease. Few are more annoying than the bronchial, especially the asthmatic attacks. The same nerve, so intimately connected with the ganglionic centers, is the bridge which connects this system to the spinal and cerebral centers, and admits of the direct transmission of the uterine impulse to the brain. Hence the nerve pains and the mental phenomena." The cause may be a hard cicatrix pinching nerve terminals, or hyperplasia from within, or exposure of the nerve in an erosion, or by a generally indurated cervical condition. The nerve fibers of the ovary are compressed in much the same way, but it is difficult to trace a reflex symptom positively to ovarian origin. It has been my good fortune to be able to demonstrate, in at least four cases, that lacerations of the cervix alone were the direct and only apparent cause for the dementia of the patients, unless I should add to this the generally congested and irritated condition of the uterus itself; for trachelorrhaphy or amputation of the cervix alone was performed and all of the cases recovered.

It should be noted here that in many of the long-standing and serious cases with general involvement of the uterine tissues it is not uncommon to find the internal os hypersensitive, and that the most careful touch with the sound creates such a spasm of pain as to compel cessation of the treatment for the time being. I have had patients insist that the sound, thus used, had brought on angina or the basic headache, as well as nausea. This shows certainly that a

filament of nerve, exposed in the lower segment of the uterus under conditions of chronic inflammation, may be a constant factor in reflex irritations. For this reason I never operate upon a cervix now unless I first curet thoroughly and particularly around the internal os, rather taking pains to eliminate all that chronically inflamed mucosa. It certainly helps to cut clear some of the sensitive nerves as well.

Not infrequently a patient presents herself for examination where the cervix at first sight appears quite normal, but is sensitive to pressure, especially if effort is made to press it forward on its axis or on the introduction of the sound. These are old lacerations with evidences covered up by a smooth mucosa, but injury just as great oftentimes and needing just as careful operative work as the enlarged cervix with ectropion. Some of the worst lacerations are at the internal os and have comparatively slight visible demonstration of injury. So with the small microcystic ovary; it is almost impossible to diagnose this condition without opening the abdomen. In either case the patient might be declared free from pelvic difficulties, while at the same time she was almost frantic from really grave pelvic disorders. All of which proves how great care is necessary in examining our patients and establishing a diagnosis.

It is a mooted question what particular part of the generative apparatus in the female is responsible for the most of the serious reflexes, whether the ovaries or the uterus itself. I believe it possible for the ovaries to excite many grave reflex conditions; still, we are constantly meeting every degree of ovarian disease without any very marked neurotic ailments, aside from those caused by the physical conditions. Further, in ovarian disease we always expect local pain as a symptom. On the contrary, in the case of the uterus patients do not generally complain of local pain, except perhaps the backache; but the reflexes are almost invariably present in one form or another. If it is simple endometritis only, and the fundus has become involved, there will certainly be present the gastric troubles and headaches so much complained of, and it is when the cervix has become affected, either by disease or long-standing injury that we seem to find our cases of most constant and serious reflex trouble.

The belief has for years existed that many women have been confined in insane hospitals suffering from ailments that should and

could have been corrected by proper gynecologic skill. The condemnatory attitude of the neurologists toward this idea has been very pronounced, and the State has been slow to admit the propriety of the appointment of an experienced gynecologist with power to examine and report, much less to operate on selected cases. I do not believe that all insane women are so because of pelvic disease. I know there are other potent causes for insanity, as, for instance, environment, impoverished blood, lactation, uremia, and the like. However, in a great many instances the gynecologist has been able to demonstrate that the insanity of a patient had been directly caused by pelvic disease. If only 5 per cent. of insane women can be cured by operative procedure for pelvic troubles (and reports from insane hospitals, not only in this country but abroad, indicate a much larger proportion), then the authorities in control of such places of detention owe it to humanity that every opportunity be afforded the insane women for a cure.

However, I wish to put myself on record as opposed to indiscriminate operating without well-defined cause. I think few in the profession would follow Schröder in removing the ovaries when no disease of them could be found. I believe that the moral and scientific influence of gynecologists, who alone are the best judges of cause and effect in these cases, should be pressed continually upon legislative and governing bodies to urge frequent, complete and satisfactory examination of every woman before she is doomed to separation from her family and detention in a madhouse.

Beyond the long line of local and general ailments induced by lacerations of the cervix, and which are so-called benign in character, we are confronted with the possibilities of malignant manifestations at the immediate locality of the injury. The relation between lacerations of the cervix uteri and malignant disease is forcibly demonstrated as cause and effect. Cancer in women appears far more frequently in the uterus than in other parts of the body, and appears to take its start from that portion of the uterus most liable to injury—the cervix. Therefore the laceration should always be repaired reasonably early, and the best results are most likely to be attained when the patient has had time to recoup her strength and involution has proceeded far enough to show accurately the lines of tear. Immediate repair of these lacerations is not always satisfactory, owing to the swollen and contused surfaces presenting, and is

likely to be followed by lack of symmetry of the canal with partial occlusion. However, if the injury should involve the circular artery and alarming hemorrhage occur, immediate repair would be demanded.

There is little that is new to be said regarding the treatment of these injuries. In all cases a preliminary treatment of rest, hot vaginal douching, tampons of ichthyol and boroglyceride, and saline laxatives, is essential. Local congestions are modified thereby, and it is a valuable adjuvant to any pelvic operative work. Dilatation and curettage, if indicated, should always precede attempts at repair. The ordinary trachelorraphic operation is one of the safest of all operations when performed under strict asepsis. But the uterus should always be handled delicately, and never dragged down harshly so as to unduly stretch its ligaments and supports. If there are adhesions they should be broken up manually under anesthesia, if possible, or under direct inspection after section. The presence of acute pelvic inflammation of the periuterine structures precludes a trachelorraphic operation until the complete subsidence of all inflammatory symptoms. It is a wise rule never to perform plastic work on the cervix in the presence of such inflammation.

Amputation of the cervix was formerly performed only for malignant disease. I have no doubt that it had its successes as well as its failures. My fellow-townsman, Dr. John Byrne, with his great skill and ingenuity essayed largely in this direction with the galvanocautery. I have three cases on record where I myself removed the cervix with the galvanocautery for malignant disease. One, of epithelioma, lived eight years after the operation and died of other disease; one, of carcinoma, lived eleven years after the operation and died of carcinoma of the breast with involvement of lung (malignant); and the third I report as follows: In September, 1887, I saw Mrs. M. S., IV-para, aged thirty-six years. She had what was apparently a well-marked cancerous growth, limited to the cervix. On September 28, 1887, the entire cervix was removed by galvanocautery, and the tumor, when subsequently examined by a competent pathologist, proved to be epithelioma. On March 7, 1889—that is to say, eighteen months after complete amputation of the portio vaginalis by the galvanocautery—Mrs. S. gave birth to a large, healthy child, and she is now, at the age of forty-one years, in the enjoyment of good health. I quote this from a paper on this

subject read by me before the Brooklyn Gynecological Society in 1893.

I simply refer to these cases to show that there were some absolute successes under Dr. Byrne's method of operating—more, probably, under his immeasurably skilled hand than under that of any other or all others. However, I rarely use the galvanocautery now, and never for malignant disease of the uterus, because I believe it to be vastly safer, if any portion whatever of the uterus is involved in malignant disease and the case is operable under any condition, to perform a panhysterectomy. But there are many cases also of old and long-standing cervical disease which are not malignant in character, but which, nevertheless, are most satisfactorily relieved by amputation. These are cases where the normal tissue has been so fully invaded by disease as to promise small results from simple trachelorrhaphy. In these cases I always amputate with the scissors. Amputation has this special advantage: it comes nearer to clearing the neurological atmosphere of the patient of all hystero-neuroses by cutting off the supply of irritant causes focused in the cervix. It promotes involution far more rapidly than trachelorrhaphy, thus relieving tension from overweighted ligaments and pressure on surrounding parts producing congestion.

To conclude:

1. In cases where the injury is recent and the constitution of the patient is so good that no extensive degenerations have occurred—in short, where there is a reasonable probability of being able to restore the cervix to a normal condition, this should be done by Emmet's operation.

2. In old cases where extensive alterations have taken place, as proved by direct examination, and not less certainly by the unmistakable and intractable reflexes that attend such alterations, the unbearable headaches usually referred to the vertex and the nuchal region, the gastric disturbances, and the endless procession of psychic, neurotic, motor, cardiac, and respiratory aberrations so familiar to every experienced physician—in such cases trachelorrhaphy is out of the question. To remove all the diseased tissues, and that alone, would call for an unattainable amount of nicety of dissection; and supposing the dissection accomplished, the sewing up of what was left might result in a most interesting thing "of shreds and patches," but it would not be a cervix uteri—which is

the only legitimate object of trachelorrhaphy. In such cases amputation is as effective, clinically, as it is logical in theory.

3. The operation is not more dangerous than trachelorrhaphy.

4. It is not likely to be followed by stenosis of the canal.

5. There is nothing in the operation that seriously militates against conception or a normal gestation and delivery.

DISCUSSION.

DR. M. ROSENWASSER, of Cleveland, O.—I cannot say that I have followed throughout the trend of thought of the paper. I shall therefore limit my remarks to one or two points. It was in 1892 that Dr. Byrne read his paper on high amputation for cancer of the uterus by galvanocautery before the American Gynecological Society. I was so impressed with the results quoted by him that I at once wrote Dr. Byrne to ascertain in what manner I could get the particular electrocautery that he used, inasmuch as he discarded the use of any other cautery. In his reply to my letter he stated that I could not get the battery in this country; that these electrocauteries were very expensive, and, as the demand was limited, the manufacturers did not care to make them. We were thus seriously handicapped to begin with, even though we desired to follow the advice of Dr. Byrne. Until we can get this battery and learn how to use it, Dr. Byrne's valuable experience can be of no practical service to us.

As to the indications for trachelorrhaphy and for amputation of the cervix, I agree with the author that trachelorrhaphy has now only a limited scope, and that amputation of the cervix is to be preferred in all cases of chronic disease of the cervix with infiltration of the tissues. We get better results from the latter operation. The writer has, to my mind, laid too much stress upon the reflexes due to cicatricial tissue in the lacerated cervix. I believe that much of the reflex trouble has its origin not in the cervix alone, but in the diseased uterus as a whole. Very often the laceration is not extensive enough to prompt us to repair it; a thorough curetage of the uterus relieves these patients of all their previous symptoms—proof conclusive that the symptoms were due to the diseased uterus. Had the cervix been simultaneously repaired the symptoms might have been attributed to the small cicatrix and the relief to its removal. Much more cervical repair work was done in former years, soon after Emmet first called our attention to the matter, than is being done today. At that time every surgeon felt

it incumbent upon him to repair the slightest nick in the os; instead of being benefited by the operation the patient was often made worse; she suffered more from the newly contracted os than from the original cicatrix.

In general, I agree with the principles discussed in the paper; they may be considered well established.

Dr. Joseph Price, of Philadelphia.—I am glad that Dr. Hyde has written upon this subject, because it is one that is commonly neglected. A few years ago I requested a very enthusiastic pupil who saw me do a number of plastic operations, and who wanted something to do to pay his expenses while in Philadelphia, to write a series of papers on plastic operations while away from home. I told him at that time I felt that plastic surgery was a lost art; that diseases of the cervix and the repair of injuries incident to parturition had been grossly neglected; that with the death of the old staff at the Woman's Hospital in the city of New York plastic surgery practically died, and that the interest in abdominal surgery at the present time was too great for gynecologists to give the subject the attention it had received at the hands of the old staff. I feel that the statements I made at that time will apply to plastic surgery of these parts at the present day. I am satisfied that injuries of the cervix incident to parturition and laceration of the external soft parts have been very much neglected, since abdominal surgery has almost universally been adopted by not only specialists but by the general surgeon. While I do not lament the fact that surgeons and physicians generally are becoming more and more enthusiastic over operative work for appendicitis, because it is a murderous disease, and while I never criticise any man for removing the little assassin, yet that does not excuse us for neglecting plastic work, in which we should take more interest. I do not think Dr. Emmet had any occasion to apologize for the operation he devised for the repair of cervical injuries; but he felt that the operation was being overdone, or rather that it was improperly practised, because but few men had given the subject sufficient study to repair properly injuries of the cervix.

The pathologic conditions referred to in this paper need precisely the correction and attention recommended by the author, but the tears, whether slight or great, should be repaired early. Injuries of the pelvic floor should be repaired promptly. I am satisfied that many good wives would be better wives and better mothers were these injuries recognized early and repaired carefully. Superficial repairs of the cervix are imperfect procedures. Operations on the pelvic floor should follow in all cases, whether the lacerations be partial or com-

plete, or whether of the first or second degree. Many of these women whose lacerations have not been repaired have very uncomfortable sensations, as, for instance, a sensation of the viscera protruding, so that they have either to cross their legs or sit down in order to feel perfectly comfortable. This disagreeable sensation of protrusion of the viscera can be overcome by correcting the injured or lacerated cervix, reducing the size and unhealthy conditions of the cervix, and repairing any injuries to the pelvic floor, thus re-establishing the conditions that existed previous to parturition.

Dr. Emmet was in the habit of dwelling largely upon the causal relation which cicatricial tissue bore to early malignancy in the cervix. I am satisfied that the decomposing mucus and admixture of dirt and vaginal secretions have as much to do with early malignancy of the cervix as the scar tissue, because in all cases of young married women I have never known a young mother to return to a gynecologist, who had repaired the pelvic floor properly, with malignant disease of the cervix. It is that observation which prompts me to make the statement that prompt repair of the pelvic floor will prevent cervical malignancy.

Dr. Edward J. Ill, of Newark, N. J.—I am glad Dr. Hyde has suggested the operation of repair of the cervix as such. He may have seen a paper written by Dr. Emmet within the last year in which he withdraws the suggestion of repair of the cervix. I was never so astounded in my life as to see him withdraw his operation which has demonstrated its usefulness so many times for amputation of the cervix. I am glad Dr. Hyde has had the courage to uphold the old operation against even such an eminent man as Dr. Emmet.

Dr. A. B. Miller, of Syracuse, N. Y.—I agree with the remarks of Dr. Price that plastic work has been too much neglected. A few years ago nearly all gynecologic surgery was done on the pelvic floor and upon the cervix uteri. I am not prepared as yet to feel that lacerations are not the great factor in producing malignant degeneration of the uterus. We were originally taught that malignant disease occurred more frequently in cases of lacerations, and seldom does it occur where lacerations are absent. Owing to the degenerative changes which take place at the period of the menopause this is the time that it should occur. Previous to the lacerations of the uterus it is seldom we find a condition of hypertrophy or enlargement of this organ. Following injuries to the soft parts, the pelvic floor, as well as of the cervix, because they go hand-in-hand, we find by examining our patients that pathologic conditions have occurred and are clearly defined in our text-books in the following order: subinvolution, hyper-

trophy, and hyperplasia, with an outpouring of the glandular secretions, nature's method of correcting the diseased conditions. This process goes on indefinitely or until the woman arrives at the menopause with an impaired physical condition as the result of long suffering; and the changes which take place in these organs at this time lower her vitality and predispose to malignancy. Every pelvic surgeon has observed in the cases where he has done repair of the pelvic floor, as well as repair of the cervix, by the methods which have been laid down by Emmet, that all these pathologic conditions are relieved immediately. We also observe, if we subject our patients to a continuous course of office treatment, that their symptoms are lessened and we may feel they have been cured. But if these patients are permitted to go on for weeks without treatment and they again return to us, we find the lesions present which were originally observed —hypertrophy, hardness, induration, a heavy uterus, with a tendency to fall down on the pelvic floor, where we have injuries of this body associated with lacerations of the uterus. These displacements do not belong to the congenital form, but are simply acquired forms which have become a part of the trouble. On the other hand, if by proper treatment, rest in bed, and local applications depletion is brought about, and we subject the patients to operative intervention for the repair of the cervix and the proper repair of the pelvic floor, we lose sight of them because they are cured and do not require subsequent office treatment. Furthermore, cases are very few that have malignant degeneration following.

There was one point not made clear by the essayist, and it is this: he did not say whether the curetment was done at the time of the trachelorrhaphy or previous to it.

Dr. Hyde.—I did a curetment and a trachelorrhaphy at the same sitting.

Dr. Miller.—I would criticise that mode of practice. It is unsafe in the majority of cases to do curetage and repair the cervix at the same time. If one resorts to curetage along with repair of the cervix, he will occasionally have a case in which an inflammatory condition occurs that will go on to a general endometritis, extend to the peritoneal cavity, and death follow. These are the cases where pyogenic organisms exist in the uterus that have been dormant for sometime, but are awakened to activity by the curetage. As a matter of fact, for the security of the patient curetage should be done a few days previous to repair of the cervix. The scrapings should be carefully examined, and the repair should be a subsequent operative procedure.

Dr. Edwin Ricketts, of Cincinnati, O.—I enjoyed the paper of Dr. Hyde very much indeed. It is certainly a timely one. He directs our attention to a subject that has been neglected for the past few years. The fact that a laceration of the cervix exists simply goes to show that it is a door standing open to the possibilities of infection. I cannot understand why it is that so many practitioners claim that a laceration of the cervix is not of much importance.

I am fully in accord with the remarks of Dr. Miller with reference to old lacerations, attempting to do curetage and sewing up the laceration at one sitting. I think it is much safer to make use of that measure. I cannot understand why a laceration of the cervix should not receive as much consideration at our hands as a laceration of the perineum. In how many instances do we see a laceration of the perineum in which the tear extends far up, and in the hands of inexperienced operators how often do we see incomplete operations for repair of the perineum? That cancer can develop, having its exciting cause a laceration of the cervix, I am fully convinced. The importance of paying attention to these lacerations in the manner suggested by Emmet and others is certainly worthy of commendation.

As to amputation of the cervix for cancer, I am very glad to see that the essayist condemned it and advocated total extirpation. That in itself is a step forward.

As I have previously said, the paper is timely in that it calls our attention to a subject which should receive more consideration than it has in the last few years. We have run after other things which have seemed to us more important.

Dr. Hyde (closing the discussion).—I am rather surprised that Dr. Rosenwasser should receive such a reply from Dr. Byrne in regard to the battery. Personally, I know of at least six surgeons in Brooklyn who have those batteries, and while they are expensive I do not see why other surgeons may not and cannot have them just as well. I will say this much about the batteries: it is quite difficult to manipulate them unless one is thoroughly conversant with their mechanism; and all physicians are not electricians. Comparatively few know how to make a battery or how to handle one properly. In the first place, Dr. Byrne made his own battery. He was an inventor. He knew every item in its construction intimately. He knew just what his battery could do, which accounted largely for his success in its use where others failed.

Unless one is thoroughly conversant with the galvanocautery he is liable to have it fail him in the middle of an operation. That is one reason why I have largely abandoned it. However, the galvano-

cautery will always have an honored place in those cases of uterine cancer which have advanced beyond the point of safe operative procedure with the knife, and where the great distress, hemorrhage, or fetid discharge renders life absolutely unbearable to the patient as well as her friends. Here it is used as a temporary comfort.

In cervical amputations by the cautery method, it is interesting, perhaps, to know that I have never yet had a stenosis of the cervical canal follow the use of the platinum wire heated to a dull red heat, and I have used this method a great many times. This was one of the formidable arguments against cautery amputations.

I was very glad to hear Dr. Price say what he did in regard to my paper as to the necessity of always sewing up vaginal tears and perineal lacerations. Of course, I was not dealing with these things particularly in my paper; but Dr. Price is eminently right. If we have an open, patulous vagina we are apt to have a dirty one, and it is possible to have an additional cervical trouble. The Emmet operation, as we all know, was really a modification of Sims's operation. The latter had no canal sutures. Emmet modified Sims's operation by putting in the canal sutures, for the reason that Sims observed stenosis of the cervical canal following his case of trachelorrhaphy and of amputation. He operated with scissors, and did not use canal sutures while Emmet substituted them.

THE MECHANICAL OR COMBINED PLASTIC AND MECHANICAL TREATMENT OF RETRODEVIATIONS OF THE WOMB.

By MARCUS ROSENWASSER, M.D.,
CLEVELAND.

Owing to the frequent discussion of the surgical treatment of retrodeviations of the womb, the impression is prevalent that the mechanical treatment has become obsolete. This opinion finds further warrant in the fact that some of the writers of recent text-books give the old treatment but passing notice. These authorities would relegate the pessary to a very limited sphere and advance operative interference to the fore-front.

In this paper it is intended to lay special emphasis upon the methods of treatment by which the womb is restored to its proper place by mechanical or combined plastic and mechanical means. Too often are serious operations performed, involving risk to life or to the integrity of the abdominal wall, when safer and equally successful procedures would suffice. A pessary alone, or a pessary rendered more effective by a preliminary plastic operation, will answer the purpose in many cases. Guided by my experience, I would repress this too strenuous operative tendency and reverse the teaching by advocating the tentative use of mechanical means in properly selected cases, and limiting operations to cases for which they are specially indicated.

The operations to the indiscriminate use of which objection is raised are those requiring opening of the peritoneal cavity or cutting of the abdominal wall, and are entitled "suspension operations," in distinction from those styled "plastic," which include curetage and repair of cervix or vagina.

For the sake of euphony "retrodeviation," "retroversion," and "retroflexion" are used as synonymous terms. The object of the treatment is to replace the womb and to support it until it can retain its normal position without further aid. The plan of treatment is

based upon the character of the displacement. The possible efficiency of pelvic massage is not considered, because it has not been practised by the writer.

We classify retrodeviations into *simple* and *complicated*. The complicated retroversions are subdivided into those with *movable* and those with *fixed* womb.

Of 1055 cases examined in my office for pelvic disease between January, 1896, and July, 1901, 233 were backward displacements of the second and third degree. Cases of the first degree were excluded. Twenty-two were simple, 201 were complicated; 162 with movable, 39 with fixed womb; 107 were examined for diagnosis and never returned; 116 submitted to treatment; 63 of the latter, constituting over one-half of the cases treated, were selected as proper subjects for mechanical treatment; they were treated by means of the pessary alone, or the vaginal plastic operation was supplemented by a pessary.

The table herewith submitted contains the details of these 63 cases. Those in which the womb has retained its normal position a year or more after removal of the support are classified as cured; those still wearing a pessary, but relieved of symptoms previously complained of, are considered symptomatically cured. Among these there are a few who probably are cured and could dispense with the use of a support, but decline to do without because they feel well and do not care to risk a relapse. The term improved includes the more recent cases that claim to feel better, and those whose improvement is evident, but who still decline the plastic operation necessary for a cure.

The following is a summary of the results:

Number of cases treated			63
Simple			13
Complicated	with movable womb	44	50
	with fixed womb	6	
Cured			11
Symptomatically cured			15
Improved			26
Not improved			11

SIMPLE RETRODEVIATION.

Number of cases treated	13

Cured, 1; symptomatically cured, 2; improved, 10.

It has been doubted that retroversion, as such, causes any symptoms; that it does produce symptoms of its own is proved by the almost immediate relief from local and reflex disturbances after replacement. Rosie A. (No. 3), domestic, aged eighteen years. First menses at fourteen, regular since. During the past year she has been having a tearing pain down the left limb throughout the menstrual period; she is constipated; suffers pain to faintness before defecation; has constant pain in lower abdomen; has desire for food, but is nauseated. Sleep is poor; memory very poor; she is very nervous and has constant headaches. She does her work, but tires easily, and her limb feels heavy. The uterus is enlarged and thickened, dense to the touch, retroverted; the sound enters two and three-quarter inches; the cervix is conical; there is no discharge. The uterus was replaced by digital manipulation and a pessary used. One month later the patient reports that her last menses were without pain and that all her complaints have disappeared. Examined eighteen months later the uterus is normal in density and position.

Mrs. M. (No. 38), aged thirty-two years; married thirteen years, mother of four children. Her menses are regular without pain. There is no vaginal discharge. During the past month she has been feeling weak and faint; during the past ten days she has had several attacks of severe, sharp pain in the back—she "couldn't turn." The pelvic floor is slightly relaxed, the uterus retroverted in the third degree. The uterus was replaced with ease and a pessary fitted. She returned in three days relieved of the weakness and pain. A month later she again felt weak and faint; examination disclosed the uterus had slipped over the pessary. Immediate relief was afforded by a larger pessary.

Mrs. M. (No. 43), aged thirty-three years; has had one child, eleven years ago. She had worn a pessary for four years for retroversion. During the past five years she had been without a support, enjoying good health. Three weeks ago she was taken with a stinging pain in her left side from the groin to the region of the heart; there was pain in the chest and backache. The uterus was found retroverted; it was replaced and her old pessary was again used. I quote her report on the following day: "I felt better on arriving home yesterday, and feel decidedly relieved to-day." She has continued well the past six months, still wearing the pessary.

Numbered among the improved cases is one that demonstrates the consequences of reckless operating in simple retroversion. It is the only case in which any operation was performed:

Miss C. (No. 9), of Akron, school teacher, aged twenty-seven years. She went to a sanitarium because she was "generally run down and had a poor appetite." Four days after her arrival, without previous attempt to replace or support the uterus, the Alexander operation was performed by a skilful surgeon. She remained in the sanitarium for twelve weeks. On her return a local physician was obliged to put in a pessary to enable her to walk any distance—a difficulty she had not experienced before her operation. When seen by me she was very nervous; unable to concentrate her mind; sleepless. She had been for five months without a pessary, but felt that she must wear one again to facilitate walking. The uterus hangs low in the pelvis, in the first degree of retroversion. The right kidney is movable. A retroversion pessary and an abdominal supporter affords the desired relief.

Simple retroversion is not as rare a condition as some would have us believe. The failure to replace a womb, especially under anesthesia, is often interpreted as positive evidence of its fixation by adhesions. The womb may, however, be wedged in between the uterosacral ligaments, simulating a fixed uterus. The differential diagnosis between a womb thus wedged in and one that is bound down by adhesions is sometimes impossible. I have been thus deceived in a number of cases in which abdominal section disclosed the non-adherence of the uterus, which had seemed fixed at the time of the bimanual examination. In the following case this error was fortunately discovered in time:

Miss W. (No. 63), aged twenty-two years, seen in 1895. She had met with an accident six years previously; since that time she has been subject to frequent hysteric spells and is subject to a feeling of fear when left alone. Her extremities are always cold. There is a profuse mucous vaginal discharge. She has a constant pressure in the pelvis, as of some obstruction to bowel movement. During the past six weeks she has been confined to bed. Examined under ether the retroverted uterus cannot be dislodged by manipulation or sound, and is considered adherent. She was prepared for curetage and ventrofixation. While dilating the cervical canal the uterus suddenly became freely movable. The laparatomy for which

she had been prepared was abandoned; the uterus was easily replaced and supported by a pessary. The improvement was marked and rapid. She has since acted as nurse, done general housework, and is now on her feet all day clerking. She still wears her pessary, preferring to take no chances of relapse.

A retroverted womb uncomplicated by pelvic disease, whether producing symptoms or not, should be replaced and properly supported. When the symptoms are due to the displacement, but the patient cannot or will not wear a pessary, or when the pessary, though well fitted, fails to maintain the womb in the normal position, a suspension operation is indicated.

COMPLICATED RETRODEVIATION.

1. *With Movable Womb.*

Number of cases treated	44
Without operation	18
With plastic operation	26

Cured, 8; symptomatically cured, 13; improved, 14; not improved, 9.

Retroversion is generally associated with other pathologic conditions, such as pelvic inflammation, endometritis, subinvolution, laceration of the cervix, prolapsus uteri, prolapsed diseased ovary or ovaries, relaxed vagina, lacerated perineum. The complications are the causes of much of the suffering that was formerly attributed to the displacement.

When retroversion constitutes only one of the links in the chain of injuries caused by parturition, replacement and support alone do not suffice. The operations, singly or combined, of curetage, trachelorrhaphy, resection of the vagina, as may be indicated by the nature of the case, are the essential preliminaries to the restoration of the womb to its normal place. The complications being first overcome, a pessary can now be used in the manner recommended for uncomplicated cases. If the pessary prove ineffectual or the patient will not or cannot bear it, one of the operations for suspension of the womb becomes necessary.

Good judgment must be exercised in determining the character and scope of the surgical intervention. It has been my custom to perform those operations only that do not involve opening of the peritoneum, whenever it seemed probable that a pessary could sub-

sequently keep the womb and appendages in good position. To be more explicit: Given a movable, retroverted uterus, with prolapsed, enlarged, engorged ovaries, lacerated cervix, and relaxed perineum, I do the uterine and vaginal plastic work only at this operation. After two or three months the womb is replaced and a pessary fitted. The suspension operation is reserved for the cases that are not practically cured by the means mentioned, and for those in which the appendages are diseased sufficiently to require opening of the peritoneal cavity on their own account.

Mrs. O. (No. 46), aged forty years, mother of two children, the last nine years old. Her menses are regular, without pain; she has had "falling of the womb" since her first confinement. "Things feel as if coming away from below." She has worn a support, but it has done no good. A prominent specialist has proposed removal of an ovary, ventrofixation, and vaginal repairs. She has a perineal laceration with rectocele; the cervix is lacerated, its anterior lip is greatly hypertrophied, projecting from the vagina like a fibroid polyp; the uterus is retroverted, three and one-half inches deep; the right ovary is prolapsed and enlarged to the size of a walnut. The patient readily consented to my proposal to curet, amputate the anterior lip, and repair the cervix and perineum. Six months later the uterus was replaced and a pessary fitted. She continues wearing the pessary, the enlarged ovary cannot be felt, and she enjoys better health than she ever did in her life.

When retroversion is complicated by aggravated prolapsus uteri, reconstruction of the relaxed pelvic floor, together with support by the pessary, does not suffice. Intra-abdominal pressure will in time overcome all resistance from below; it is, therefore, essential to success that the vaginal plastic be performed simultaneously with the suspension operation, or in some cases with hysterectomy.

2. *With Fixed Womb.*

Number of cases treated	6
Without operation	3
With plastic operation	3

Cured, 2; improved, 2; not improved, 2.

In many instances the womb is bound down by adhesions, or it is included in a mass of exudate, or it is crowded back by a tumor. The inflammation or the tumor constitutes the disease, of which the

retroversion is not a link but merely an incident; hence the treatment is directed to the relief of the peritonitis or to the removal of the growth. Fixed uteri are treated as part of, or as consequence of, the pelvic inflammation, not as displacements. With but few exceptions the replacement and retention of the womb become a subordinate part of the operation, which may be indicated for the removal of the growth or of the diseased appendages.

In exceptional cases of pelvic inflammation after the subsidence of all acute symptoms, prolonged treatment by tampons or by pelvic massage effects absorption of adhesions and facilitates replacement and ultimate cure by pessary. Adhesions may also be absorbed during pregnancy.

SUSPENSION OPERATIONS.

Operations for suspension or fixation of the womb involve opening of the peritoneal cavity, and cannot be said to be free from danger. The original Alexander operation may not penetrate into the cavity, but it opens the layers of the abdominal wall, and is known to have been occasionally followed by hernia. Ventral and vaginal fixation add the possibility of dystocia to other risks.

The increasing variety of these operations, the frequent shifting from one method to another, and the discovery of their respective defects and shortcomings are sufficient proof that we have not yet attained our ideal. They are not always cures. Quite a few are either immediately or ultimately partial or total failures, rendering necessary the wearing of a pessary despite the operation. Remembering that we are still in the experimental stage, and that they become necessary in only about one-third of the cases selected for treatment by mechanical means, it seems to me we ought not to perform the suspension operations simultaneously with the plastic, but at a later period, after the failure of the safer methods, unless other pelvic conditions make abdominal or vaginal section imperative.

THE RETROVERSION PESSARY.

Many surgeons and some gynecologists, lacking the necessary patience and possibly the time, have learned to "short-cut" all intricate problems and regard the advocate of the pessary with a look of pity mingled with derision. To command the best results from this simple device often requires more diagnostic ability and longer experience than does the concomitant plastic operation, and

it requires as much mechanical skill. I would sooner trust the tyro with the technics of an operation of which he can imitate the successive steps, than with the process of moulding, fitting, and placing of a pessary which he cannot copy because it is invisible. The pessary is no more an instrument to be used by the inexperienced than is the uterine sound or the catheter or the obstetric forceps.

The purpose of the pessary is to elongate the relaxed vagina by lifting the posterior vault, which in turn draws back and holds the cervix in its normal position. Made of hard rubber or celluloid, moulded to fit, and worn under proper supervision, it is clean and safe. The patient does not realize its presence in the vagina, and can continue wearing it for years with perfect comfort. It does not interfere with sexual relations or with conception, and causes no dystocia.

It is urged against the pessary that the number of cures is small; that it does harm by distending the vagina; that by becoming incrusted it leads to ulceration; that by pressure it aggravates irritated or inflamed organs; that it is not clean; that it is too annoying, and its use too long drawn out to deserve consideration in comparison with the neat, rapid, and safe surgical substitutes of today.

Seventeen per cent. of my cases treated by the pessary have been cured; 24 per cent. have been symptomatically cured; 41 per cent. have been improved, and only 18 per cent. have been total failures. The time required for cure has varied from one month to twelve years; the average time was two years and nine months. This is an emphatic contradiction to the assertion that unless a pessary effects a cure in three months it will not cure at all. The pessary that unnaturally distends the vagina is a misfit. The length of the posterior vaginal wall and the width of the vaginal vault should be our guide. The pessaries, as manufactured, are too short in proportion to their width and sharp pelvic curve. More length, less width, and more gentle curve are needed. A virgin may require a longer instrument than a multipara. I consider it a misfit to introduce a pessary into the vagina without having replaced the uterus; or to place a pessary so that the upper bar compresses a prolapsed ovary against the sacrum; or to place one so that it crowds up against a pelvic exudate mistaken for a retroflexed uterus. Abuse of this kind will soon cause discomfort sufficient to prejudice patient and doctor against further effort. The fault lies not with the pessary but with the directing hand behind it. Neglect may lead

to ulceration or to incrustation, or both. Removal once in three months, or sooner on complaint, and a daily alkaline douche, constitute all the annoyance to the patient; by three or four examinations a year, after the pessary has been once well fitted, the attendant will have complied with the requirements of supervision. Pregnancy took place in fourteen patients while wearing a pessary. When the womb had risen into the lower abdomen, which is usually between the fourth and fifth months, the pessary was removed.

THE PESSARY AND THE SUSPENSION OPERATIONS.

The pessary and these operations are not opposing but supplementary methods. Each has its distinct indication. The pessary is to be first used to support the replaced uterus; the operation is limited to cases in which the carefully fitted pessary has failed. The mistaken use of the pessary can be corrected; a wrong operation cannot be undone. Delaying the operation involves neither hardship nor risk to the patient, but may redound to the credit of the surgeon. In view of the present imperfect status of suspension operations I submit the following

CONCLUSIONS.

1. A retroverted womb uncomplicated by disease should be replaced and supported by a pessary.

2. Retroversion complicated by diseased womb or impaired pelvic floor, the womb being movable, requires preliminary plastic operation to restore the normal condition before using a mechanical support.

3. Suspension operations should not be done simultaneously with the plastic, in face of the probability that a pessary can sustain the womb in position.

4. Retroversion complicated by aggravated prolapsus requires simultaneous plastic and suspension operations to effect a cure.

5. The treatment of retroversion with fixed womb is that for pelvic inflammation. Whenever the latter requires laparatomy or colpotomy, the retroversion becomes subject to such surgical treatment as may be best suited to the particular case.

6. Retroversion, simple or complicated, in which mechanical support and plastic operation have failed to cure or to relieve, and in which the symptoms demand relief, constitutes a proper indication for a suspension operation.

No.	Name.	Simple.	Complicated by	Treatment.	Pessary worn.	Result.	Remarks.
1	Mrs. A.	.....	Third degree; subinvolution.	Tampons for 2 months, followed by pessary.	Seven months; removed on account of pregnancy after wearing pessary 2 months.	Improved; wearing pessary again past 7 months.	Baby now 22 months old; on return of patient 7 months ago uterus in first degree retroversion. Last seen June 20th.
2	Mrs. A.	.....	Third degree; no complication when seen by me.	Curetage; amputation of cervix; Alexander operation; also had worn round pessary without benefit; uterus replaced and pessary fitted.	Six months; removed on account of pregnancy after wearing pessary 6 weeks; pessary replaced four months after childbirth.	Symptomatically cured; still wearing pessary.	When first seen by me patient could not stand or walk or do any of her work; now lives in suburbs, takes care of her garden, rides bicycle. Baby 2½ years old. Last seen June 21st.
3	Miss A.	Third degree.	.....	Replace and fit pessary.	One month.	Cured.	Last seen June 1st; uterus has remained in normal position; twenty months since pessary was removed.
4	Mrs. A.	.....	Third degree; endometritis, rectocele.	Curetage; perineorrhaphy; replacement; pessary.	Seven months; removed on account of pregnancy after wearing pessary 3 months; pessary replaced two months after childbirth.	Improved; wearing pessary two months.	Baby now 4 months old; on return of patient the perineum was again lacerated, the uterus retroverted in third degree. Last seen July 30th.
5	Mrs. B.	.....	Third degree; endometritis, enlarged tender right ovary, later chronic oophoritis.	Uterus replaced; pessary fitted.	Two weeks; patient became pregnant, and could not bear the pessary.	Not improved.	Six months after childbirth the uterus was retroverted in third degree, and both appendages tender. Last seen twenty-two months ago.
6	Mrs. B.	.....	Second degree; fundus held back by bands of adhesion; right ovary prolapsed, enlarged; right kidney movable.	Had been cureted before she came to me; no replacement, owing to bands of adhesion; abdominal supporter; after confinement the uterus became movable, and was readily replaced.	Four months.	Improved; wearing pessary four months.	Baby now six months old; uterus relapsed two months after confinement. Last seen August 6th.
7	Mrs. B	Third degree.	.....	Replacement; pessary.	Nine months.	Improved; wearing pessary.	Last seen June 17th.

8	Mrs. C.	.....	Third degree; endometritis.	Curetage; replacement, pessary.	Two years, six months.	Cured; relapse after 2 yrs. 8 mos.; again wearing pessary, with immediate impr'ent.	Had been under care of a prominent surgeon for three years previous to seeing me; could not bear the pessaries that had been tried; wearing pessary again one month. Last seen July 31st.
9	Miss C.	Second degree.	Movable right kidney.	Alexander operation had been performed at a sanitarium without attempting replacement; abdominal supporter; replacement; pessary.	One year, six months.	Improved.	Not seen past two years; wearing pessary when last seen.
10	Mrs. D.	.....	Third degree; cystocele; relaxed perineum.	Replacement; pessary.	Two years.	Improved; wearing pessary.	Patient declined operation despite a large cystocele; feels very comfortable.
11	Mrs. F.	.....	Third degree; subinvolution, hypertrophy of vaginal portion of cervix.	Replacement; pessary.	Three years.	Cured.	Uterus has remained in good position during the past fourteen months; is wearing a pessary to prevent irritation of elongated cervix. Last seen August 6th.
12	Mrs. F.	.....	Third degree; cervix lacerated, perineum lacerated, right ovary prolapsed.	Curetage; perineorrhaphy; replacement and pessary 9 weeks later.	Seventeen months.	Symptomatically cured; wearing pessary.	Last seen August 5th.
13	Mrs. F.	.....	Third degree; endometritis, lacerated perineum, movable right kidney.	Curetage; perineorrhaphy; replacement and pessary 3 months later; abdominal supporter.	Seventeen months.	Improved; wearing pessary.	Patient may ultimately need nephropexy and suspension operation owing to general enteroptosis. Last seen March 2d.
14	Mrs. G.	.....	Third degree; prolapsed right ovary.	Replacement; pessary.	Three and one-half months.	Improved.	Wearing pessary when last seen five years ago.
15	Miss G.	.....	Third degree; endometritis.	Curetage; replacement; pessary.	Two months.	Improved.	Patient non-resident; wearing pessary when last seen three and a half years ago.
16	Mrs. G.	.....	Third degree; rectocele.	Replacement; pessary.	Eighteen months.	Improved.	Wearing pessary when last seen November 6, 1899.
17	Mrs. G.	Third degree.	.....	Replacement; pessary.	Eight months; interrupted by pregnancy.	Improved.	Unsuccessful attempts by others to fit pessary; had abortion (probably induced) five months after replacement; womb replaced two months later; was wearing pessary when last seen twenty-one months ago.
18	Mrs. G.	.....	Third degree; endometritis, rectocele, lacerated cervix.	Curetage; replacement; pessary.	Nine months.	Not improved.	Pessary was removed ten months ago with anatomic but not symptomatic improvement. Not seen since.

No.	Name.	Simple.	Complicated by	Treatment.	Pessary worn.	Result.	Remarks.
19	Mrs. H.	.....	Third degree; endometritis.	Curetage; replacement; pessary.	Three months.	Not improved; suspension operation.	Attempts to fit pessary during 3 months unsuccessful; 11 months after curetage did ventrosuspension; 2½ years later uterus again retroverted, patient having enjoyed good health in the meanwhile.
	Mrs. H.	Third degree.	Prolapsed right ovary.	Replacement; pessary.	Six years.	Symptomatic cure; wearing pessary.	Patient is probably cured; has refused to dispense with pessary past two years. Last seen August 12th.
21	Miss H.	.....	Third degree; endometritis, probable adhesions.	Curetage; replacement; pessary.	Seven weeks.	Not improved.	Patient could not bear pessary on account of pain; not seen since removal.
22	Mrs. H.	.....	Third degree; endometritis.	Curetage; replacement; pessary.	Seven months.	Not improved.	Patient wearing pessary when last seen four years ago.
23	Mrs. H.	.....	Endometritis, lacerated perineum.	Curetage three years after; replacement and pessary.	Eight years.	Symptomatic cure.	Patient declined plastic operation; pessaries frequently changed at first, but past two years has worn one with complete relief; does all her own work. Last seen July 11th.
24	Mrs. H.	.....	Third degree, chronic oophoritis; perineal laceration, pelvic adhesions.	Laceration repaired by Dr. T. G. Thomas, New York, 1887; pessary fitted 3 months later.	Twelve years.	Cured.	Patient had two children during her protracted illness; had declined oophorectomy and suspension operation; has not worn pessary since last confinement two years ago; repeated examinations since show uterus in normal position. Last seen December 24, 1900.
25	Mrs. H.	.....	Third degree; endometritis, lacerated cervix, prolapsed right ovary.	Curetage; replacement; pessary.	Seven months.	Cured.	Patient seen October, 1899, one year after removal of pessary, remained quite well; seen recently, but not examined. Reports herself in excellent health.
26	Miss H.	.....	Third degree; endometrttis; prolapsed right ovary, chronic membranous colitis.	Curetage; replacement; pessary.	Five months; intermission of 13 months; again wearing five months.	Improved.	After having tried for five months to fit a pessary regarded it a failure; thirteen months later succeeded in fitting a pessary which holds the uterus and is worn with comfort. Last seen Sept. 13th.
27	Mrs. H.	.....	Third degree, endometritis.	Curetage; replacement; pessary.	Twenty-two mos.	Symptomatic cure; wearing pessary.	Seen last Aug. 7th; patient non-resident; ready for tentative removal of pessary.
28	Mrs. H.	.....	Third degree; endometritis, lacerated cervix, lacerated perineum, prolapsed, tender right ovary.	Curetage; trachelorrhaphy; perineorrhaphy; replacement and pessary 3 months later.	Three weeks.	Symptomatic cure.	After operation uterus remained in second degree retroversion; when pessary was removed six weeks ago the position was normal. Last seen Aug. 21st; uterus in first degree retroversion; no pessary.
29	Mrs. J.	.....	Third degree; rectocele.	Replacement; pessary.	Three months.	Improved; wearing pessary.	Last seen June 28th.

30	Mrs. K.	.....	Third degree; endometritis.	Intrauterine treatment; tr. iodin; replacement; pessary.	Three months.	Cured.	Last seen four and a half years ago.
31	Mrs. K.	.....	Third degree; subinvolution.	Replacement; pessary.	One year.	Cured; pessary removed during pregnancy.	Became pregnant after having worn pessary a year; 18 months after childbirth the uterus was in good position. Last seen nine months ago.
32	Mrs. K.	.....	Third degree; endometritis, right kidney freely movable.	Replacement; pessary; abdominal supporter.	Nine months.	Improved.	Last seen two years ago; patient never returned after removal of pessary; probably a cure.
33	Mrs. K.	.....	Second degree.	Had had some operation (curetage?) before I saw her; replacement; pessary.	Six months.	Improved.	Was wearing a pessary when last seen, about a year ago.
34	Mrs. K.	.....	Third degree; cervix lacerated, endometritis, menorrhagia.	Replacement; pessary.	Six months.	Improved; wearing pessary.	Patient begged to be treated without operation; feels much better: menorrhagia ceased. Last seen July 23d.
35	Mrs. K.	.....	Third degree; cervix lacerated, perineum lacerated.	Replacement; pessary.	Seven months.	Improved; wearing pessary.	Had been wearing pessary fitted by her physician, but had removed it because it hurt: was prejudiced against it. Last seen May 24th.
36	Mrs. L.	.....	Third degree; lacerated cervix, lacerated perineum.	Lacerations had been repaired before I saw her; replacement; pessary.	Seven weeks.	Not improved; suspension operations.	Pessary having failed, uterosuspension was done; seen 15 months later; uterus was in good position; one year after this, while abroad, Alexander operation made, the uterus having given way.
37	Mrs. L.	Second degree.	.....	Replacement; pessary.	Three months; removed on account of pregnancy; replaced six weeks after confinement.	Symptomatic cure; wearing pessary.	Baby born one year ago. Last seen July 8th.
38	Mrs. M.	Third degree.	.....	Replacement; pessary.	Two months.	Improved; wearing pessary.	Last seen August 4th.
39	Mrs. G.	Third degree.	.....	Replacement; pessary.	Three months.	Improved; wearing pessary.	Last seen July 8th.
40	Mrs. M.	.....	Third degree; lacerated perineum, prolapsed appendages.	Replacement; pessary.	Three years, eight months; removed on account of pregnancy; replaced nine weeks after confinement.	Symptomatic cure; wearing pessary.	Did not return for a year after replacement; uterus had retained its position, and pessary was not incrusted; thinks she could not do her work without the pessary. Last seen July 20th.
41	Mrs. M.	.....	Third degree; probably adhesion.	Replacement and pessary tentatively.	Six weeks.	Not improved.	Pessary cannot hold uterus in place, after repeated trials; case for suspension operation.
42	Mrs. M.	.....	Second degree; cervix lacerated, endometritis, relaxed vagina, prolaps'd right ovary.	Replacement; pessary; tentatively.	Nine months.	Not improved.	Last seen eleven months ago, wearing pessary.

No.	Name.	Simple.	Complicated by	Treatment.	Pessary worn.	Result.	Remarks.
43	Mrs. M.	.....	Third degree; adhesions.	Preliminary tampon and hot douche treatment for one year; replacement; pessary.	Four years; remained well five years; wore pessary again for six months.	Cured.	After having been without pessary five years, retroversion returned 4 months ago; having suffered three weeks, she called at the office; uterus replaced, with immediate relief. Last seen Sept. 16. Pessary removed.
44	Mrs. M.	Third degree.	Prolapsed left ovary.	Replacement; pessary.	Five months.	Improved; wearing pessary.	Last seen July 29th.
45	Mrs. M.	Second degree.	.....	Replacement; pessary.	Six weeks.	Improved.	Last seen August 12th.
46	Mrs. O.	.....	Third degree; endometritis, lacerated cervix, hypertrophied anterior lip, lacerated perineum, prolapsed right ovary.	Curetage; amputation of lip; trachelorrhaphy; perineorrhaphy; replacement and pessary 6 months later.	One year.	Symptomatic cure; wearing pessary.	Never felt better in her life. Last seen May 28th.
47	Mrs. P.	.....	Third degree; endometritis.	Replacement; pessary.	Two years, six months.	Not improved.	Had pessary removed one year ago; has declined cureting. Last seen August 11th.
48	Mrs. R.	Third degree.	Prolapsed appendages.	Replacement; pessary.	Seven months; removed on account of pregnancy.	Improved.	Patient not seen since removal of pessary; probably cured.
49	Mrs. R.	.....	Second degree, endometritis, lacerated cervix.	Preliminary tampons; curetage; replacement; pessary; later re-curetage; trachelorrhaphy; replacement.	Six months; intermission six mos.; again seven mos.; abort. at 3½ mos.; again 14 months; removed on account of pregn'cy.	Symptomatic cure.	Pessary removed when four and a half months pregnant. Last seen six months ago.
50	Mrs. R.	.....	Third degree; endometritis, slightly relaxed vagina.	Curetage; replacement; pessary.	Two years.	Symptomatic cure; wearing pessary.	Feels perfectly well; declined to have pessary removed. Last seen June 18th.
51	Mrs. R.	.....	Second degree; cervix lacerated, vagina relaxed, right ovary prolapsed, left ovary probably slightly adherent, uterus held by band of adhesion, right kidney movable.	Had had preliminary tamponades; replacement and pessary tentatively.	Five months.	Improved; wearing pessary.	Has been advised abdominal section; my advice was plastic operation and pessary; this advice has been urged repeatedly, but patient wishes to try pessary further. Last seen July 9th.
52	Mrs. S.	.....	Third degree; endometritis.	Curetage; replacement; pessary.	Six years.	Cured.	Had discontinued pessary a number of times with relapses; has been without it 18 months. Last seen July 9th.

53	Mrs. S.	.....	Third degree; lacer'ed cervix, lacerated perineum, prolapsed right ovary.	Replacement and pessary tentatively.	Had worn pessary 15 mos.; removed on account of pregnancy; again 11 months.	Not improved.	After confinement wearing the pessary became more and more painful, until it had to be discontinued. Patient last seen four years ago.
54	Mrs. S.	.....	Third degree; fibroid uterus.	Rest in hospital two weeks; replacement; pessary.	Fifteen months.	Symptomatic cure.	Pessary removed when tumor had grown somewhat larger. Last seen 18 months ago.
55	Mrs. S.	.....	Third degree; endometritis.	Tamponade for nine months; curetage; replacement; pessary.	Nine months; removed on account of pregnancy.	Cured.	Baby nine months old; uterus had remained in good position since confinement. Last seen July 13th.
56	Mrs. S.	.....	Third degree; had had peritonitis six weeks ago.	Replacement; pessary.	Three months.	Improved.	Had missed one period when last seen, one year ago; was wearing pessary at the time.
57	Miss H.	Third degree.	.....	Changed pessary.	Two weeks.	Improved.	The pessary her physician had fitted was too short, allowing the uterus to fall back over it.
58	Mrs. T.	.....	Third degree; endometritis.	Curetage; replacement; pessary.	Four months.	Not improved.	Before examination patient wished to negotiate for hysterectomy; nothing could swerve her from this idea; the pessary held the uterus in good position, but the patient was not relieved; pessary removed by request.
59	Mrs. U.	.....	Third degree; endometritis, subinvolution.	Curetage; replacement; pessary.	Six years.	Symptomatic cure; wearing pessary.	Removed pessary four years ago tentatively, but relapse followed; has worn it since, doing her own work; declines to do without it. Last seen Jan. 29th.
60	Mrs. U.	.....	Third degree; endometritis, right ovary prolapsed.	Replacement; pessary; curetage a few days ago.	Eighteen months.	Symptomatic cure.	Has been without a pessary for a month, the uterus remaining in good position; cureted August 28th; will probably be a cure.
61	Mrs. W.	Second degree.	.....	Replacement; pessary.	One year.	Improved; wearing pessary.	Last seen March 8th.
62	Mrs. W.	.....	Second degree; endometritis.	Curetage; replacement; pessary.	Three months.	Cured.	Has been without pessary one year. Last seen June 4th.
63	Mrs. W.	.....	Third degree; endometritis.	Curetage; replacement; pessary.	Six years.	Symptomatic cure; wearing pessary.	Has been urged to discontinue pessary the past three years, but feels so well and works so hard that she will take no risk of relapse. Last seen one year ago; she may have removed the pessary herself since; I consider her cured.

DISCUSSION.

Dr. Edward J. Ill, of Newark, N. J.—Dr. Rosenwasser has covered the ground so well, and I agree with him so much in what he has said, that I really have very little to add. It is hard on the patient sometimes when we can do a third operation at the same sitting, to remedy permanently a retroflexed or retroverted uterus, not to do it. The inclination is great to make a permanent cure of the retroflexion while we are repairing the perineum, the relaxed outlet, or the cervix, and I usually do that, reserving those cases for pessary treatment that are otherwise called perfect.

Dr. A. Goldspohn, of Chicago, Ill.—I just entered the room, and did not have the privilege of hearing all of the doctor's paper. I do not favor the idea of treating retroversion of the uterus and prolapsus by plastics upon the pelvic floor and then following that with the use of a pessary. I am inclined to do all that is necessary for the woman after she is put to sleep, and if I do a plastic operation on the pelvic floor, and there is a prolapsus, I usually do something to supplement the plastic operation upon the pelvic floor, that is, make some attachment of the uterus directly or indirectly to hold it in place. And in this country we are more fortunately situated than Europeans are, because the cases of marked descensus or prolapsus here are usually in elderly women, in whom the child-bearing function is either out of the question or nearly so, and such women you have the privilege of sterilizing. Certainly, they are willing to be so treated if they can be cured of their infirmity. If, however, we should occasionally meet a younger female in whom the reproductive function is still a factor to deal with, there the question becomes somewhat difficult, and we have no absolutely certain surgical measures to cure the infirmity positively and not interfere with the needs of gestation and childbirth. The Alexander operation is not a good one for cases of descensus or prolapse, because of the great elongation of the sacrouterine ligaments, which are required to have their proper shortness or normal length quite as much as it is important to shorten the round ligaments. The instances of descensus in which the Alexander operation has been made use of by some foreigners during the last few years, and those cases of prolapse so treated by the Alexander operation and a plastic operation upon the pelvic floor have furnished the only cases of recurrence of retroversion after an intervening pregnancy. There are no other instances of recurrence of retroversion following the Alexander operation on record except those where this operation was done for

cases of prolapse. Fortunately, we do not get many of those cases, and the patients can usually be treated, if the prolapse is not marked, either by an Alexander operation or by the round ligament suspension of the uterus in the abdominal wall after the manner of Dr. Gilliam; or older women are well treated by high and firm vaginal fixation of the uterus along with the plastic operation upon the floor.

Dr. Herman E. Hayd, of Buffalo, N. Y.—There is one thought that came to my mind in connection with the reading of this paper, and it is this: I never do a ventrofixation or a ventrosuspension in a child-bearing woman. I never do a ventrosuspension, or, better still, a ventrofixation, without thoroughly scarifying the anterior surface of the uterus and sewing it firmly to the abdominal wall, and only in a case where I have removed the tubes and ovaries, or in a case of extreme procidentia. I believe that the operation of ventrofixation, together with plastic work on the perineum and anterior vaginal wall, gives us the best results in cases of extreme procidentia. I would not, for a moment, want you to think that I do not believe in the pessary in uncomplicated cases of retroversion or retroflexion or that it is not a comfortable instrument. I do not wish to put myself on record as saying that I prefer to treat a patient for weeks by means of a pessary to cure her of an uncomplicated retroversion, when I can do it in a few moments with certainty of success, and absolutely without danger incident to the operation itself, with an Alexander operation. A retroversion which has occurred in a woman who has been recently confined, or one that has occurred in a woman who has recently miscarried, may be cured by a pessary in a certain percentage of cases. But when such a woman has worn a pessary and probably has become pregnant again and has borne a second child, and the uterus falls back again to where it was previous to the last confinement, it is ridiculous to put in another support. Now is the time, it seems to me, to give up any mechanical support from below and do an Alexander operation. As I said in my paper, in the retroversions of unmarried women and young women who have not borne children, the ligament has undergone so much thinning and weakening, that mechanical supports in the shape of pessaries do not make permanent cures. I do not believe any of us can recall a patient in our experiences who has had a retroverted uterus not due to pregnancy or miscarriage, and was married two or three years, and finally came to us for treatment on account of symptoms which resulted from her uterus, or perhaps from the tubes and ovaries, who was ever cured by the application of a pessary. I do not believe that these cases are ever cured by pessaries, that is, in patients who have not borne children and who have not had miscar-

riages, because the ligaments are so thin they will not contract or retract enough to hold the uterus forward permanently.

Dr. Joseph Price, of Philadelphia.—I am very fond of pessaries. I have given the pessary more thought and attention than any mechanical appliance I am familiar with in gynecology. Years ago I looked up the literature and studied it very thoroughly, and I likewise studied the works of Smith, Thomas, Grailly Hewitt, and others with great care, and I found nothing in their contributions that I could very well contradict. They did, in a certain class of patients, use them successfully. I have placed pessaries in young women with posterior displacements of the uterus who questioned the propriety of marriage, with a knowledge of the fact that they had such displacements. I can recall half a dozen in the last year or so of girls that came to me, one of whom is now travelling in Europe, and one recently came to be delivered of a baby. These women came to me before they were married. They had posterior displacements that were distressing. I put them to bed, anteverted the uterus and placed a Hodge or Thomas pessary. These pessaries gave them no discomfort; in short, they were unconscious of the presence of the pessary except that they knew it had been placed. They gave it no thought whatever, and such women go along and behave just like other women, and if they conceive, about the fourth or fifth month the pessary can be removed. Many of these women have conceived, and their uteri have remained in position after they were corrected, without discomfort or recurrence of the displacement, and the cures were satisfactory. What has occurred since delivery I do not know, but I will simply say this, that these displacements, whether they come back or not, have nothing to do with it. In all probability those same displacements will follow the Alexander operation that follow a correction of the displacement by the application of a pessary. I believe that what has been accomplished by the Alexander operation has been largely undone by the gravid uterus at term. I cannot see why an Alexander operation should be a lasting one in what little has been accomplished by shortening of the round ligaments.

In regard to ventrofixations, if these operations are practised as frequently throughout the country in the future as they have in the past it will not be a long time before every man in this room will be asked to relieve obstruction of the bowel at midnight. On the whole, they will be the worst cases you have ever had in surgery. For instance, three such patients were admitted to my private hospital during my absence, by my brother and by my assistants, requiring midnight sections to relieve acute bowel obstructions following ventrofixations, to say

nothing about the horrible complications necessitating Cesarean section, the destruction of the child, abdominal section, etc., to arrest post-partum hemorrhage. One good, wise German obstetrician delivered a woman in a German maternity who bled profusely. He tried all the well-known methods of controlling post-partum hemorrhage and failed in a woman who had a ventrofixation. He did a section and released the anchored uterus which interfered with uterine contractions, when the hemorrhage ceased.

It makes no difference when the uterus is stitched to the anterior abdominal wall, whether the suture is one-quarter of an inch in front or one-quarter of an inch behind. I have known operators to wrangle over that for a long time.

To come back to pessaries in child-bearing women, the restoration of the pelvic floor is important, whether we use a pessary or not. It is important to correct the relaxation at the outlet, or the pelvic floor, or diaphragm; then you can use a pessary successfully. I frequently say to my patients, "You will have to have your perineum restored, and the correction of the displacement would be very easy." If I fail in the use of pessaries, I think probably I shall adopt the Alexander or some other operation. But ventrofixations I look upon as remunerative operations, and they are frequently performed by a number of operators throughout the country. I could double my income in a short time if I were to do these operations. The uterus can be stitched up by a comparatively easy operation. I know men who are doing such operations every day, and they never lose a case.

DR. J. H. CARSTENS, of Detroit, Mich.—I must say that I agree with the remarks of Dr. Rosenwasser. If the uterus lies in the cul-de-sac and it is doubled up in this manner (illustrating) with no adhesions, if you try to get it back you cannot do so without putting a sound inside and working it around, and even then finally the case may require a ventrofixation. Some of us know that if we put a woman in the knee-chest position, take hold with the tenaculum, pull the uterus down, straighten it, and put in a pessary, that woman is relieved. She does not need a ventrofixation. If we have a case in which there is a large uterus, and it comes up something like this (illustrating), and there is a big cervix with a laceration, and if we fix the laceration, cut off a big piece there and a little piece over here, and pull the uterus down at this point and stitch it up, the uterus can be held in place, and you need not do an Alexander operation or anything else, just as Dr. Rosenwasser says, if you add to this a plastic operation on the vagina and a good perineum. The patient does not need any other operation, and probably the application of a pessary

will help her. Furthermore, there are other cases that call for an Alexander operation. In a number of instances the operation for lacerated cervix can be supplemented by opening the anterior cul-de-sac and doing a Duhrssen or Mackenrodt operation. Those cases are rare, but we select one of these operations occasionally.

We have another class of cases in which the uterus is heavy in old women with relaxed vagina, a kind of subinvolution. We stitch up the uterus after the manner recommended by the essayist, but we will find by and by it will come down again, the uterus becomes retroverted and makes its appearance outside. In such cases you make the vagina so small that you can hardly introduce a lead-pencil. The woman contracts a cold, begins to cough, and finally the uterus gives way. In that class of cases I would not hesitate to remove the uterus. It is the best thing to do in such cases. The important point that Dr. Rosenwasser wants to make is that each case ought to be treated as a law unto itself. In one case we can do this, and in another we can do that. We have a multiplicity of methods in trying to manage these cases. All of them are of value more or less, and I believe with Dr. Price that the pessary is a good thing. I use pessaries once in a while, but not all the time. I think everything else that has been suggested is good, even ventrofixation, but I do not do more than one a year.

Dr. Robert T. Morris, of New York.—I would like to know whether Dr. Carstens favors the removal of the uterus. We are apt to have prolapse of various structures, and I prefer to leave the uterus in for a handle; fasten it up snugly to the anterior abdominal wall. I do not see how we are going to get on unless we have something substantial to keep the vaginal walls from sagging. Some of us have found it advisable not to remove uteri very often.

Dr. Carstens.—In rare cases when I remove the uterus I take the two broad ligaments, stitch them across, and the heavy uterus is removed, and the broad ligaments hold the parts in apposition without any trouble. But I do not have occasion to do this operation more than once a year, but we have such cases occasionally.

Dr. Rosenwasser (closing the discussion).—Dr. Goldspohn has probably misunderstood me. He assumes that I advocated the treatment of retroversion with prolapse by plastic operation and pessary. Cases of retroversion with prolapsus cannot be treated successfully by means of a plastic operation and pessary; they require some suspension operation to make the cure effective.

Dr. Hayd is opposed to treating patients for two or more years with pessaries in order to keep their uteri in position. Perhaps this is mere prejudice; it is not a very onerous duty to the physician nor to the

patient. The patient calls at the office about three times a year, when the pessary is removed, cleansed, and replaced. This is really the extent of the treatment, and the woman is able to attend to her social and domestic duties, oblivious of the pessary, feeling perfectly well. Of course, she has to use a douche once a day, or perhaps once in two days. Twenty-five per cent. of my patients have been symptomatically cured by replacement of the womb and wearing of a pessary. I have requested them to try to do without the pessary, and their usual reply is: "I prefer to wear it because I am sure I can do everything about my household. It does not interfere in any way, and I do not care to have it removed." I can recall such replies on numerous occasions.

The treatment of retroversions by means of pessaries is not very remunerative; a single operation pays better in a lump fee than the long-continued treatment of a score of such patients. I cannot, therefore, be charged with advocating this treatment from pecuniary motives. My attention was first directed to this subject on reading the annual report of the Kensington Hospital for Women for 1899. In reading over the table of Dr. Noble's cases I found 190 laparatomies reported for that year. Of this number 61 were ventrofixations. Of the 61 ventrofixations, 43 were for retroversion and 18 for procidentia. Of the cases of retroversion, 25 were simple; in other words, 25 operations were done apparently without sufficient indication. This led me to investigate the statistics of other operators, which proved no more satisfactory. I studied the table of Alexander operations published by Dr. Edebohls in the *American Gynecological and Obstetrical Journal* for 1896. The number of operations was 115, and of these the results are reported as follows: Absolute failures, 3; no improvement after operation, 10; not seen after operation or after leaving the hospital, 28; not seen later than three months after operation, 16; that is 44 of the remaining 102 cases were not seen later than three months after the operation. There were several hernia cases and one death. Of 83 Alexander operations published by Cleveland in volume xx. of the *Gynecological Transactions* for 1895, 43 were not seen after they had left the hospital; one was still in the hospital when reported cured. Admitting the liability of any one to err in attempting to pass judgment on cases not seen by himself, yet scrutinizing in cold print the 43 cases reported by Noble, the 115 by Edebohls and the 83 by Cleveland, I believe it to be no exaggeration to claim that operation in one-third of those cases was unnecessary.

The cases I have reported cured have remained cured from one to five years before they were placed on record. The average time was

twenty-eight months after the removal of the pessary. The average time in Ebebohls's cases was sixteen months, and in Cleveland's six months. No fair conclusion can be drawn from these immature records. It takes a long period of time to establish the truth in regard to ultimate results.

Dr. Hayd's argument in favor of the Alexander operation in unmarried women for simple retroversion, because he had never seen them cured by pessary, is contradicted by the two cases reported in my present paper.

I feel very grateful to the Fellows for the kind treatment I have received at their hands in this discussion. In the presence of so many abdominal surgeons I had expected quite a few to radically oppose my views. I recognize with much pleasure the swinging of the pendulum in the direction advocated in my paper.

SOME OBSERVATIONS ON THE SURGERY OF THE SPLEEN.

By LEWIS S. McMURTRY, M.D.,
LOUISVILLE.

PRESENT-DAY knowledge of the physiology and pathology of the spleen is imperfect, and the surgery of that viscus has not advanced proportionately with that of the other organs of the abdominal cavity. In view of these facts every case which may possibly contribute to our knowledge deserves to be studied and recorded. The following example forms the basis of this communication:

Mrs. S., aged thirty years, white, the mother of three children, applied to me March 5, 1901, for treatment. The family history is excellent, and the patient was ruddy, well nourished, and strong. Her health had been uniformly good. The menstrual function was normal; vaginal examination negative.

About one year ago she had observed an enlargement in the left side of the abdomen, which had steadily increased in size, and now presented as a tumor quite as large as a man's head. The tumor was evidently cystic, fluctuation being distinct, and it was freely mobile. While standing, the tumor gravitated into the pelvis and was below the umbilicus; lying down, and especially when upon the left side, it would glide toward the left hypochondrium, and could be felt above the umbilicus. It could be readily carried by pressure of my hand all over the left and middle regions of the abdomen. The diagnosis was, ovarian tumor with a long pedicle or floating cystic kidney.

On March 8th I did an abdominal section and found the tumor to be the spleen in a state of advanced cystic degeneration. The cyst was unilocular and contained a straw-colored fluid; there were no signs of inflammatory changes in the adjacent peritoneum. After tapping, the tumor mass was readily drawn through a five-inch median incision. The pedicle was quite long, and was com-

posed of peritoneal folds enclosing the splenic vessels. This was readily secured with a double silk ligature and divided. The operation was very simple and bloodless, and was completed in a few minutes by closing the abdomen without drainage. Convalescence was easy and uninterrupted, and in a few weeks the patient resumed her household duties, and continues in excellent health at the present time.

The following report of an examination of the specimen was made by Dr. James Vance, the director of the Bacteriologic Laboratory of the Hospital College of Medicine.

"*Macroscopic Appearances.* The spleen presents as a conical-shaped sac, the base directed to the periphery and the apex toward the hilus. The altitude or long dimension of sac is 13 cm.; the base 8 cm. The sac contains a dark straw-colored fluid, intermingled with abundant particles of broken-down tissue. The sac wall to the periphery,—by far the greater portion of sac wall,—is composed of the much-distended capsule of the spleen. The portion of sac cavity within the spleen proper, and forming the apex, has for a wall the ragged splenic pulp without lining membrane. Section through apex of the cavity and toward the hilus shows evidences of a thrombus of a branch of the splenic artery, thereby causing necrosis and subsequent liquefaction of area supplied by that artery.

"*Microscopic Appearances.* Microscopic section shows the sac to be composed entirely of fibrous tissue with no endothelial lining. The sac fluid contains no bacteria or echinococci, showing abundant débris of splenic pulp and lymphoid cells. Microtome section of the portion of the spleen not affected by cyst shows enormous thickening of the splenic capsule, trabecula, and walls of bloodvessels, which greatly diminishes the parenchyma. The individual lymphoid cell appears little affected.

"*Bacteriology.* Culture tubes of agar-agar and blood-serum inoculated with fluid from the cyst have proved negative, no growth having taken place at either incubation (37° C.) or room temperature."

It is not proposed in this paper to consider in detail the various pathologic conditions to which the spleen is subject. In a recent communication to the Medical Society of the State of New York,[1]

[1] See Transactions for 1901.

Dr. J. Collins Warren, of Boston, has formulated a table of these diseases, numbering fifteen. It is rather my purpose to direct attention to the cystic spleen, to make it a factor in the differential diagnosis of abdominal cystic tumors, and to show that operation in such cases is not only feasible, but quite practicable; also, to emphasize the fact that the spleen is not an organ essential for life and health.

On January 18, 1901, Ashby, of Baltimore, reported to the Clinical Society of Maryland a case of splenectomy for cystic spleen similar to the one reported above. This was a case wherein he supposed he was dealing with a uterine fibroid impacted in the pelvis. The woman had elevation of temperature at the time of the operation, which was supposed to be due to some lesion of the tumor itself. He did a section, removing the spleen, and the woman immediately proceeded with four weeks of typhoid fever; five other members of her family were down at the same time with typhoid. Tests were made and every possibility of mistake eliminated, so the case was undoubtedly one of typhoid fever. The operation did not seem to complicate her illness, and she made a good recovery. He reported the case several months after her convalescence was completed, when she had gained twenty pounds in weight and was in excellent health.

Dr. H. A. Royster, of Raleigh, N. C., has reported[1] a case of this same class with the same treatment and recovery. The tumor was diagnosticated as most probably a fibrocyst of the uterus with long pedicle. The operation was done in May last, and from a personal communication I learn that the patient is in excellent health at the present time.

Through a personal communication from Dr. George Ben Johnston, of Richmond, Va., I am apprised of another case. The tumor was believed to be an ovarian cyst with elongated pedicle, but upon abdominal section was found to be a splenic cyst. The operation was simple, recovery prompt, and the patient's health is excellent after several years.

To the experienced abdominal surgeon there is nothing special in the technic of the operation of splenectomy for cystic disease. The median incision is preferable. It has been recommended by

[1] Carolina Medical Journal, July, 1901.

some operators, in removing enlarged spleens, to divide the gastro-splenic omentum between ligatures first, then turn the upper end of the organ out from the vault of the diaphragm before ligating the pedicle. In cystic disease it may be difficult to reach the gastro-splenic omentum, and it is preferable to draw the lower end of the spleen upward and secure the splenic vessels from that direction.

DISCUSSION.

Dr. James F. Baldwin, of Columbus, Ohio, was called upon to open the discussion. He said: I am sorry that you did not call on someone who has had more experience in this line of work. I have had none. I have been asked to operate on several cases in which the diagnosis had been made of enlarged spleen, but when I reached the field of operation I found it was not the spleen at fault, but some other organ—usually the kidney.

There is only one point of interest, it seems to me, that was not covered by the essayist, and that is the differential diagnosis between tumors of the spleen and tumors of other abdominal organs. In the case reported, Dr. McMurtry stated that the diagnosis lay between an ovarian tumor with an elongated pedicle and an enlarged spleen. As I understand it, the line of colonic tympany of the descending colon will always enable us to positively state whether we are dealing with an enlarged spleen or a tumor arising from the pelvis—that is, we can always determine as between these two conditions. The colonic tympany must, for anatomic reasons, be found to the right of the splenic tumor, or overridden by it, while, for the same reasons, it will be invariably on the outside of a tumor coming up from the pelvis. It will likewise be on the outside or in front of a tumor of the kidney. I had a case two or three years ago of a woman having a kidney tumor which I pronounced sarcomatous. At that time the tumor was somewhat movable, and I advised an operation. She went, however, to an institution at Battle Creek, Mich., and the tumor was promptly diagnosed as an enlarged spleen and her case considered inoperable. I saw her again a few weeks later, at which time the tumor was firmly adherent, and no operation for its removal could be considered, as it was firmly attached to the spine and surrounding tissues. In her case colonic tympany could be easily determined, without injecting air into the bowel in front of the tumor and to its outer side. The autopsy

verified my diagnosis. It seemed to me that in this case the error in diagnosis was hardly excusable; but as I have seen it made by a number of excellent physicians and surgeons I think the error is due to the overlooking of this anatomic point. A prominent merchant of Columbus, Ohio, had a sarcoma of the kidney,—at least that was my diagnosis, which I based upon the fact that the tumor was clearly of the kidney, and as he had unquestionably, to my mind, a sarcoma of the testicle, I considered the kidney tumor of the same character. Soon afterward he went to New York and consulted a surgeon of world-wide reputation, who, overlooking this little point of colonic tympany and the diseased testicle, made a diagnosis of enlarged spleen and sent the patient home with a good prognosis and a prescription for Fowler's solution. A few weeks later the patient died, and the autopsy showed sarcoma of the testicle and kidney. This is a point, therefore, in diagnosis which we should always look for, and the determination of the position of the colon, by bringing it out by the injection of air if necessary, will enable us many times to arrive at a positive diagnosis of the origin of some of these abdominal tumors. I have not thus far had occasion to inflate the bowel, but that course has been advised by Dr. Harris, of Chicago, who published a very valuable paper on this subject a year or two ago in the Journal of the American Medical Association. I was at the time preparing a paper myself on this subject, but abandoned the idea on the appearance of his article.

Dr. Charles Greene Cumston, of Boston, Mass.—I would like to ask Dr. McMurtry to state, in closing the discussion, whether he can throw any light on the remote effect of removal of the spleen. Being a glandular organ, I would like to know what there is known about the effect on the general organism.

Dr. L. H. Dunning, of Indianapolis, Ind.—There is a field for investigation in neoplasms of the spleen. I wish to say, further, that with our present light I do not believe there is any neoplasm or any abnormal enlargement of any organ that will bring a greater number of difficulties in diagnosis than that of enlargement of the spleen in some instances.

It was my fortune about three years ago to encounter a case of movable spleen in which a diagnosis was made of fibroid tumor of the uterus. The organ was slightly movable; it lay against the uterus, and had all the appearances of being a subserous fibroid of the uterus. On opening the abdomen we found the spleen displaced downward and adherent to the upper portion of the enlarged uterus. I know of no means at our command by which we could have diagnosed that case before opening the abdomen. This case showed the ease with which

the spleen can be removed in some instances, as in Dr. McMurtry's case. I was hampered in dealing with my case by a promise I had foolishly made to the parents of the patient, that I would not remove any organ that would necessarily endanger life, and just before I went to the operating-room, the mother of the patient being in tears, I was beseeched not to proceed with my operation if I found anything besides some simple trouble, and I promised as requested. Under the sentiment of the moment I did not remove the spleen, but I found it anchored by an adhesion, so that, at least, it was limited in its movements. I made another mistake—I severed the adhesion which was attached to the posterior part of the walls of the abdomen as well as to the spleen, and this rendered it movable, while before it was partially fixed. Instead of doing my patient benefit, I did her harm. After severing that adhesion I delivered the spleen through the opening, turned it over and looked at it. It had a long pedicle. Why I did not remove it I do not now understand. I think I should have done it in the light of present experience.

One thing else I want to mention, and it is this: I am persuaded that we have more surgical difficulties of the spleen than we are aware of. I encountered a case of infarct of the spleen last summer in which I made an exploratory incision. I was able to determine before the exploration that there was enlargement of the spleen; it filled one side of the abdomen nearly to the brim of the pelvis. The marks of it being an enlarged spleen were very evident. But on entering the abdominal cavity I found adhesions to such an extent that I thought I would not be justified in attempting to remove the organ. This woman had fever; she lived about two months and died. We had the privilege of making a postmortem examination, and we found about two-thirds of the spleen involved in a necrotic process. It was examined by a pathologist, who pronounced it an infarct. We also found organic disease of the heart, which explained the occurrence of the infarct of the spleen in this case. It was an inoperable case. We need to develop our knowledge of diagnosis and our technic in the surgery of the spleen.

Dr. J. H. Carstens, of Detroit, Mich.—These cases are very rare indeed. There are very few cases of either cyst or movable spleen. I am preparing a paper at the present time on this subject. I have looked over the literature very thoroughly, and I find there are but few such cases. Two years ago I was called upon to remove a spleen which was supposed to be malignant, but when I cut down on the outer edge of the rectus on the left side and opened the abdomen I found I had to deal with an immense kidney. Inflation of the rectum and other measures would not have enabled me to make a differential diagnosis.

About a year ago I had a case similar to the one detailed by Dr. McMurtry. The woman was thirty years of age, a school teacher by occupation, who had fibroid tumors of the uterus. I examined her uterus and found a number of small fibroids and one large one. I made an abdominal section and found a growth back of the uterus in the posterior cul-de-sac. This growth turned out to be the spleen. It was one of those cases with a long pedicle. The spleen was healthy, and I did not remove it. I made an opening below the ribs at the outer edge of the rectus, about two inches in length, scraped the spleen with a knife to get it raw, scraped the anterior abdominal peritoneum, brought the spleen up, stitched it to its normal position, enucleated four fibroids from the uterus, and sewed up the wound. The family physician told me lately that the woman has been well ever since, so that I think Dr. Dunning did right in not removing the spleen in his case. When it is normal it should not be removed. It is different when it is cystic. It is difficult to make a diagnosis beforehand. Sometimes you think it is a spleen when it is a kidney. Sometimes you think it is a fibroid tumor, and it turns out to be a spleen.

Dr. A. Goldspohn, of Chicago, Ill.—I have nothing to contribute in regard to surgery for tumors of the spleen, but the suggestion of a prominent German surgeon whose name I cannot at present recall. In anchoring a floating spleen, such as has been alluded to by the last two speakers, his method is to make an incision in the lumbar fascia, dissect it up, make a pocket, and introduce it there. The spleen, therefore, is held by the pocket which is created in the fascia in front of the lumbar muscles.

Dr. Walter B. Dorsett, of St. Louis, Mo.—It would seem to me that the discussion has been confined largely to cystic disease of the spleen. I would like to mention a case of enlarged spleen. In our section of the country malaria is so common that we have many cases of enlarged spleen, and I met with one about a year and a half ago very similar to the one described by the essayist in which the diagnosis was questionable. However, I made a diagnosis of cystic disease of the ovary. I made an incision in the usual manner, and, to my amazement, I found a very large spleen, one that occupied the cavity of the pelvis pretty well, it being more or less incarcerated or fastened behind the uterus, and even after I had opened the abdomen and palpated the organ I was still led to the positive belief that there was a cystic condition which contained fluid. But after turning it over and examining it, I came to the conclusion it was resilient and not fluctuant, and the question arose, what is best to do? After passing my hand around the organ, I found it was attached to the anterior wall of the uterus and

to the fundus of the bladder by a strong adhesion, one that was as large as a No. 12 or a No. 13 silk ligature. But I was struck with the firmness and strength of the adhesion; I simply divided it, and the spleen seemed to rise in the abdominal cavity. I have been thinking of what Dr. Carstens said about sewing the spleen back and fixing it; but where we have an enlarged spleen, congestion existing, as we do in cases of malaria, I do not believe the operation would have been feasible, and the question arose in my mind whether I had better not take that spleen out, but I feel I did the right thing, inasmuch as the patient was only confined to the house about six months, and finally recovered under the administration of Fowler's solution of arsenic, together with the use of quinine alternated. The patient recovered entirely from medicinal treatment and not by any surgical measures.

Cases are somewhat limited in which we can make fixation of the spleen. I do not believe it is applicable in those cases where the spleen is enlarged on account of malarial infection.

DR. DUNNING.—I would like to ask Dr. McMurtry whether he passed his sutures into the spleen.

DR. MCMURTRY.—Yes, sir.

DR. DUNNING.—How deeply?

DR. MCMURTRY.—Not very deep; say one-quarter of an inch.

DR. DUNNING.—There is another question I want to ask of Dr. Baldwin, namely, if he finds colonic tympany on the outside in enlargement of the kidney? My experience is that I find colonic tympany on the inside of a tumor of the kidney, not from the outside.

DR. BALDWIN.—In answer to Dr. Dunning's question, it is necessary for me to make myself more clearly understood. Anatomically, as of course you all know, the spleen is outside of the descending colon. It cannot be anywhere else. I do not care how large it is, or how low. As it enlarges it may fill almost the entire abdomen, as I have seen in one or two instances, but we have a flat percussion-note over that side, the descending colon being pushed to the right of the spleen or being overridden by it.

The relationship of the colon to the enlarged kidney varies somewhat with the direction of development of the kidney, but it will always be found, I think, either in front of the kidney or on its outer side, so that in either event the differential diagnosis between spleen and kidney is not difficult. In removing the kidney through the abdomen you can reach it by going through either the internal or the external layer of the mesocolon. If the tumor is not very large colonic tympany will be usually entirely on the outside of the tumor, but if the tumor is large it presses out the mesocolon, and the tympany will then be directly

over the tumor. When we have to differentiate between splenic and pelvic tumors it seems to me that the position of the colon will absolutely determine between an enlarged spleen and a pelvic tumor. If the tumor is splenic it will be on the outside of the colon, or, if very large, it will tend to override the colon, so that in some cases it will be necessary to inflate the colon by injecting air into the rectum in order to bring out this tympany. I would like to say, furthermore, that it is equally important to determine the relations of the colon on the right side when there is doubt as to whether a tumor there is an enlarged kidney or a distended gall-bladder. Only a few days ago I saw a case in consultation in which the question arose as to whether a tumor which existed on the right side was a distended gall-bladder or an enlarged kidney. The patient was moribund and the case clearly inoperable, but colonic tympany was found passing below the tumor and was not in front of it. The tumor crowded the colon down. The diagnosis, therefore, was that the tumor was not a kidney, but was an enormously distended gall-bladder, and this diagnosis was verified at the autopsy made a day or two later.

Dr. C. C. Frederick, of Buffalo, N. Y.—I rise to substantiate the point referred to by Dr. Baldwin by reporting a case. I read the article referred to by him.

About eighteen months ago I was called to see an elderly lady who had what appeared to be an enlarged spleen, and, as Dr. Baldwin says, the percussion-note from the very top of the mass down to its bottom was absolutely flat. There was no evidence of any colonic resonance whatever. In that case I distended the descending colon with gas and made out distinctly the line of colonic resonance below the tumor inside, below the line of the navel. The tumor was a carcinoma of the spleen, as a postmortem examination revealed. The patient refused operation. I simply arose to bear out what Dr. Baldwin has said in regard to diagnosis.

Dr. Edwin Ricketts, of Cincinnati, Ohio.—I was interested in the remarks of Dr. Baldwin regarding colonic tympany, and I would like to ask him whether he finds any difficulty in differentiating between colonic tympany in such cases as reported by the essayist and cyst of the kidney?

Dr. Baldwin.—In a cyst of the spleen the tumor is, of course, flat on percussion. There is no air in it, and the sound is perfectly flat. Fluctuation would determine very largely whether the tumor of the spleen was cystic or not. If the walls were tense it might be difficult to determine the presence or absence of fluctuation, but the percussion-note would be the same in both, and the relationship of the tumor to the colon would be the same.

Dr. John A. Lyons, of Chicago, Ill.—I desire to endorse Dr. McMurtry's remarks in regard to the percussion-note over an enlarged spleen. Ordinarily such an enlargement is easily diagnosed. I began the study of medicine while living in a malarial district of Illinois, and remember well how very often the physicians there found greatly enlarged solid tumors in the left hypochondrium of their patients, which enlargement they promptly attributed to the malarial parasite of that swampy region, and as promptly they began the reduction of these tumors by the administration of quinine and Fowler's solution of arsenic. To me the doctor's case is unique. I therefore congratulate him upon his correct diagnosis of it and also upon his courage in operating, but more especially upon the success of the operation.

Dr. McMurtry (closing the discussion).—The free discussion has accomplished the object of the paper, which is to direct attention to the surgery of the spleen. The physiology and pathology of the spleen are so obscure that this has been almost an unknown country in the development of abdominal surgery, and the surgery of this organ certainly deserves more attention than it has received. Just to illustrate this point: If you will take Dennis's *System of Surgery*, which was written less than a decade ago, and refer to the article on the surgery of the spleen, written by Maurice H. Richardson, of Boston, you will find there that the mortality of splenectomy at that date, from the best cases that could be recorded, is about 40 per cent., which is large enough to shut off that field from surgery. Since that time great progress has been made, and it is my desire to separate the various diseases of the spleen, so that we may improve our methods of diagnosis, and only operate on those cases of disease of the spleen that are properly within the range of surgery, and exclude from the statistics those desperate operations that are made for a hopeless class of diseases wherein death occurs on the table from hemorrhage.

In regard to the diagnosis of cystic disease of the spleen, Dr. Baldwin misunderstood me. I stated in connection with my case that the differential diagnosis was to be made between an ovarian cyst, with an elongated pedicle, or a floating cystic kidney, and when we come down to practical facts in regard to this point, it matters not whether it be a cyst of the spleen, or whether it be cystic degeneration of a fibroid tumor of the uterus, or whether it be a cyst of the ovary, they are amenable to the same treatment. We should classify cysts of the spleen along with the other cystic diseases and remove the spleen, and it will be discovered, as I think has been shown by my own case and by the other cases I referred to, that this operation can be done with confidence and safety.

Reverting a moment to splenic surgery in the past, you will find that there is a great deal in the history of this subject that is discreditable. Perhaps I do not use the right word, but I mean that it is difficult for us to believe it. A great deal of it is mythologic. In treatises on the subject it is related how the ancients used to remove the spleen from wrestlers and runners in order that their wind would be greater and they would be more active. That is all mythologic.

When we come to the real facts, we find that the surgery of the spleen is so recent that the first operation we know anything of was done by Péan. The first one performed in England was done by Sir Spencer Wells, so that the entire subject is really new. One of the most interesting articles on the subject is that of one of our Fellows, Dr. Douglas, of Nashville, dealing elaborately and thoroughly with the history and statistics.

The point made by Dr. Carstens is interesting. You will find in all cases reported so far that the spleen is pronounced to be an organ entirely unsuitable for fixation, that splenopexy is an operation that is impracticable, and, as Dr. Goldspohn states, in cases of movable spleen, such as Drs. Dunning, Carstens, and Dorsett have described, a German surgeon has advised the operation Dr. Goldspohn has described, namely, of making a sulcus for the spleen to rest in and to fix it there, being unwilling to thrust a needle through the pulpy structure of the spleen. Dr. Carstens has done that operation, which is a step in advance.

In regard to the question of Dr. Cumston, which is a very pertinent one, physiologists tell us that the function of the spleen is shared by the bone marrow, and that function, while not thoroughly understood, relates, as we all know, to the making of the red corpuscles of the blood. My own case and those of others show that this function on the part of the spleen can be dispensed with. In my own patient the process of splenic degeneration had been going on for a long time; there was a very small part of the spleen remaining that was functionating, and the woman was rosy, well-nourished, and vigorous. In all these cases the universal testimony is, that after the removal of the spleen the patient's health is maintained upon a perfectly substantial basis. In my case, it is about six months since the operation, and she is as strong as she ever was in her life. So far as blood manufacture is concerned, the function is not interfered with.

In the surgery of the spleen rules should be formulated. Operators have hesitated just what to do with this organ when the question of removing it presented itself. In our studies of cystic tumors of the abdomen we should look upon the spleen as a possible factor in diagnosis of an obscure cystic tumor found in the abdomen, especially if

that tumor can be moved over a very extensive area of the abdomen above and below the umbilicus. When we find it, we need not hesitate to treat it just as we do other tumors of the abdomen that are cystic. Again, the operation should not be placed upon the same basis as the operations for other diseased conditions of the spleen in which the mortality is much greater than this.

IS CESAREAN SECTION JUSTIFIABLE IN THE TREATMENT OF PLACENTA PREVIA?

By E. GUSTAV ZINKE, M.D.,
CINCINNATI.

THE accompanying tabulated record of Cesarean sections and Porro operations represent all the reported cases in which these operative procedures were adopted in the treatment of placenta previa.

The table shows that seven of these were performed by American and one by English surgeons. So far as I have been able to determine neither of the two operations has been resorted to in any other country. Of all but one, the case of Hypes and Hulbert, of St. Louis, every important detail is known. Bernays,[1] however, states that Hypes and Hulbert operated "under the most unfavorable circumstances," and that the result was a fatal one.

Cesarean section has been recommended upon theoretical grounds alone, first by Huston Ford,[2] of St. Louis, Mo., and subsequently by A. Palmer Dudley,[3] of New York, and G. M. Boyd,[4] of Philadelphia, Pa. These three authors discuss the subject in a learned and scientific manner, and have arrived at the same conclusions, namely, "Cesarean section and the Porro operation are not only justifiable but in reality indicated in *complete* and *central* ectopic implantation of the placenta."

One who reads these three logical dissertations is apt to believe that they have practically settled the question.

Judging from what has been published in text-books and journals within the present year, in derogatory criticism of the treatment of placenta previa in this radical manner, it is evident that not only the profession at large is not a unit but that the specialists in this department do not agree upon this subject. Quite a number of the latter are not willing to admit that either the Cesarean or the Porro

operation is a method of treatment better than the use of the tampon, separation of the placenta, forcible dilatation of the cervix, and bipolar version, followed by immediate delivery of the fetus and "after-birth." To illustrate:

1. Reed[5] says: "Cesarean section might be advisable in some cases of eclampsia, but a skilled obstetrician would never think of such a procedure in cases of placenta previa. In fact, the operators who advocate this step are surgeons who have little or no experience in obstetric practice."

2. An editorial in *Obstetrics*[6] admits "that no new method of treatment per vaginam will be evolved that will materially improve the best methods now pursued by thoroughly competent obstetricians . . . that the best results on these lines will never be attained by any but well experienced specialists . . . that placenta previa will always have a large per cent. of cases in which its recognition will not be held until after hemorrhage has occurred and weakened the patient." . . . That the problem to be solved "must always be to secure dilatation of the cervix and delivery of both child and placenta" and that "the best means of avoiding hemorrhage is to use Barnes's bag in the cervix, carefully keeping it in place until full bag-dilatation is secured; then promptly drawing a leg and hip into the cervix, fetal delivery with immediate placental removal, temporary packing of the cervix with gauze, and the use of ergot for twenty-four hours." . . . And further that good results "depend materially upon extended obstetric skill . . . diagnosis of fetal position, facile podalic version, the use of rubber bags, rapid dilatation, fetal and placental delivery, control of post-partum cervical hemorrhage," and that "treatment for hemorrhage is peculiarly necessary." The question "Is Cesarean section best in elective cases or those which must be taken in emergency?" is answered by: "In both the relative skill of the operator for vaginal delivery or Cesarean section must be considered in order to secure data and conclusions of practical value." Fournier's figures, 25-40 per cent. of maternal mortality, seem *absurd* to the editor of *Obstetrics* . . . "5-10 per cent. will meet the facts." . . . "A vicious insertion of placenta will materially affect the mortality of Cesarean section" . . . "much of the original placenta previa danger will remain to be overcome after section has been done." He is also of the opinion that the Porro operation is likely to give

better results notwithstanding that "its mortality is in the neighborhood of 15 per cent. and that of v. Winckel's 23 per cent." He refuses to "vary in his position for the child. The mother has the first claim." He concludes that "with special skill and proper surroundings Cesarean section is justifiable;" but that with "a medical attendant equally trained to employ either method of treatment . . . much better results will follow delivery through the vagina."

3. Another editorial is contained in *American Medicine*.[7] It begins by stating that the treatment of placenta previa by Cesarean section "demands a word of comment and caution, and, possibly, a word of condemnation. The one argument in its favor is, that it reduces the fearful fetal mortality in these cases. But the question is whether an increased maternal mortality will not ensue if such a procedure is exclusively adopted." He refers to "the splendid results of Fry, of Washington, who employed bipolar version, thus saving fourteen mothers and five children in fourteen cases of placenta previa," and to De Lee, of Chicago, who used "the tampon in a series of 25 cases without maternal mortality," showing "conclusively that if proper care is taken the maternal death-rate may be very satisfactory." He also states that "the general practitioner is generally better equipped for the treatment of this complication by version and other conservative methods than by Cesarean section, and if such radical teaching should be disseminated and be adopted we believe the maternal and fetal mortality would be increased. It is unfair to apply to these cases of ectopic placenta the admirable statistics of Zweifel, Ohlshausen, Reynolds and others who have reduced the mortality of the Cesarean operation to 3 per cent. in elective cases for contracted pelves. The pathologic condition is essentially different, the choice of time for operation, and often the diagnosis of lesion, radically different, and the results vary materially. Cesarean section for placenta previa will, probably, be never generally adopted by the rank and file of medical men for the relief of this dangerous complication of gestation.

During a recent discussion of Dr. Gillette's case at the last meeting of the Ohio State Medical Association, the same feeling was expressed with reference to the application of Cesarean section in placenta previa as is voiced in the above three quotations. Personally I have favored the adoption of the Cesarean section for this the

most serious obstetric complication, and had concluded to perform hysterotomy the first time I was confronted with a case of "complete" or "central" implantation, and so expressed myself at that meeting. My own experience with the treatment of 40 cases of placenta previa by tampon, separation of placenta around the cervix, forcible dilatation, version, and extraction of uterine contents and of one case of Cesarean section (Saenger method), convinced me that the latter procedure will accomplish the best results. My own maternal mortality, with the usual treatment of placenta previa, is 17.5 per cent.; the fetal mortality, 55 per cent. The Cesarean section made by myself was done for the presence of excessive cicatricial contractions in the vagina, caused by a previous labor with the aid of version and craniotomy, the patient being the victim of a well-pronounced justominor pelvis. The section was done in a hospital and the patient well prepared for the purpose, it is true, but I was deeply impressed with the ease with which the operation was performed, the small amount of blood lost, and the promptness of the mother's recovery. There was no shock, no complication of any kind, no rise of temperature—in fact, the patient recovered as though she had passed through a perfectly normal labor.

Had the above cited discouraging criticisms come from other sources than they did they would not have received so much attention on my part. But notwithstanding that they seem to me unjust in the main, they have come in good time, for an honest purpose, were prompted by the best of motives, and thus merit our most earnest consideration.

Let us look for a moment, but critically, upon the presented tabulated record of cases of Cesarean and Porro operations performed for the relief of placenta previa. It contains eight cases. There are, so far as known, no others.

CASE I.—Hypes and Hulbert. No particulars except as given by Bernays, "that the operation was done under very unfortunate conditions (probably after everything else had been tried), and both mother and child were lost."

To what is the bad result to be charged in the case? The Cesarean section? the previous attempts at delivery? or the surroundings of the patient? As for myself, the Cesarean section was probably not the cause, but you may choose for yourself.

CASE II.—J. M. Sligh. A rigid, probably malignant cervix. Tampons, forcible dilatations with steel dilator, Barnes's bags, and bimanual version; profuse and frequent hemorrhages for a period of seven days preceded Cesarean section. Place of operation: a boarding-house. The patient much exhausted, with a temperature 102° F., pulse 118 and probably septic at the time of the operation. Duration of operation, thirty-five minutes. Patient died in twelve hours. Fetus dead for two days.

Can anyone justly attribute the fatal issue in this case to Cesarean section? Certainly not. Had this brave man been guided less by the rules laid down in the past and performed Cesarean section before his patient was exhausted by hemorrhages, and the serious, protracted, and harmful manipulations, who can say that his patient would necessarily have died because the operation was performed in a boarding-house? Dr. Sligh was severely criticised by J. Rosenberg[8] for making a hysterotomy under the circumstances; but, judging from Sligh's reply, he is fully able to take care of himself. His answer is entirely satisfactory.

CASE III.—Bernays. Patient bled alarmingly at intervals for about twelve hours. Tampons, recumbent position in bed with hips elevated was the only treatment employed prior to the operation. Patient was not in labor. Cervix patulous. Duration of operation, twenty-four minutes and forty-five seconds. Mother recovered completely in twenty-six days. Child was extracted alive, but died in a few hours of asphyxia, due to imperfect closure of the foramen Botallo. Operation took place at home of the patient.

Might the life of this child been saved? and could the mother have recovered more promptly and with less injury had she been delivered in the accustomed and sanctioned fashion?

CASE IV.—Lawson Tait. Hemorrhage profuse for five hours. "Many other orthodox treatments" prior to the Porro operation. Patient's condition "fair." Os closed and rigid. Mother and child lived, but the latter died, one month old, of bronchitis.

Could a better result have been attained by any other method in the hands of a more skilled operator?

CASE V.—Donoghue. Cesarean section was performed about thirty-three hours after hemorrhage first showed itself. Bleeding occurred at intervals and was very profuse at the last. There were no other attempts at delivery by any other method; but the patient

was much exhausted, had symptoms of collapse, a temperature of 99.4°, and a pulse of 140. Patient was in labor; os patulous. The operation, of forty-five minutes' duration, was performed in a country house. Both mother and child lived.

Surely a better result could not have been obtained by any other means.

CASE VI.—Hare. Patient had bled at intervals for twenty-nine days. Slightly at first, copiously toward the last. There is no record of any other attempt to deliver; but patient's condition at time of operation is given as very weak, and rapid, feeble pulse. Labor beginning; os patulous. Operation performed at hospital in thirty minutes. The mother died in eleven hours, but the child lived.

There is no doubt in my mind that the patient was doomed when brought to the hospital, because of the loss of blood sustained in consequence of long delay. The bleeding during the operation was trifling. Had the patient been delivered by the forcible dilatation of the cervix, and version with immediate extraction of child and placenta, the result to the mother would have been the same, but as to the life of the child very doubtful.

CASE VII.—Covington. Place of operation, hospital. Repeated and alarming hemorrhages for a period of five weeks controlled by tampons. No other methods to deliver were employed. Patient was very weak and exhausted at time of operation, and not in labor. The performance was *nearly bloodless*, and both mother and child were saved.

Wonder what criticism the result in this case will call forth when read by the conservatives.

CASE VIII.—Gillette. Place of operation, hospital. Patient bled repeatedly for two months prior to the Porro-Cesarean section that was made, and quite profusely especially toward the end. Tampons, rest in bed, and the *usual treatment* were employed to check the flow. No attempt at delivery per vaginam. Patient very weak and pulse 135 at time of operation, which lasted thirty minutes. Both mother and child lived.

Can anything be more gratifying than the results in this case? Here, then, we have the results of eight cases of *central* or *complete* placenta previa, six of whom were subjected to the Cesarean and two to the Porro operation. Of these, five mothers were saved and six children lived.

The superficial observer and the "juggler" with statistics, if it suited his purpose, would at once exclaim: *What an awful mortality!* But let us be fair and actuated by one motive only—that of *obtaining the real truth.* However much one may desire to attribute the fatal result in the Hypes-Hulbert and the Sligh cases to Cesarean section, it cannot be done in real sincerity or honesty of purpose. Of the first case we know little except that the operation was performed under very unfavorable circumstances. Because of this and in the absence of every other detail, the case deserves no consideration whatever, and is introduced here only for one reason: *to avoid the accusation of having omitted it intentionally to suit the occasion.*

Sligh's case[10] also cannot, in all candor, be placed to the charge of Cesarean section. In all fairness and with perfect justness, indeed, the patient and her child lost their chance for life, irretrievably, because the doctor proceeded and treated the case according to the principles and rules laid down by the best authorities; and, when he had exhausted every legitimate resource, and it became evident that his patient would die if not delivered soon, he went out of his way and took advantage of the last available but, at that time, unrecommended recourse—Cesarean section. The failure to save this patient must be placed at the door of the tampon, forcible dilatation, Barnes's bags, and bimanual version. Had the doctor performed Cesarean section at once it is more than likely that both lives would have been saved, even though the operation had to be done in a boarding-house, which, in and of itself, is no positive contraindication; indeed, it is entirely justifiable to do so in an emergency. It may be said that the doctor ought not to have attempted dilatation, because he found the cervix subsequently the site of malignant disease; but he did not know of its presence in the beginning, and only began to suspect it when he failed to secure complete dilatation. The case, in fact, should also be excluded from any considerations. If it and the Hypes-Hulbert case prove anything at all, it is that Cesarean section was indicated in the beginning, not at the end of the management of it.

This, then, reduces the number of cases to six—four Cesarean and two Porro operations. Out of the six, five mothers lived and all children were born alive. One of the children died of asphyxia, the result of imperfect closure of the foramen between the auricles

of the heart; another died a month after birth, of bronchitis. As the death of neither can be attributed to the operation, we cannot but say that all children were born alive. One thing is certain, the early death of these two children is no argument against these operations for placenta previa.

I have, therefore, no hesitation in claiming that at the present time, with only six cases deserving of record, we have a maternal mortality of 17 per cent. and a fetal mortality of nil in the treatment of placenta previa by the aid of the Cesarean and Porro operations.

The lesson to be learned from this is that in Hare's [11] case the mother might have lived had she and her husband consented to Cesarean section when first suggested; and from the cases of Covington [12] and Gillette,[13] whose patients had bled at intervals, and profusely, for a period varying, respectively, from five to eight weeks, that a weakened and exhausted condition is no contraindication to either the Cesarean or the Porro operation. These two operators saved both of the mothers, and the children, too.

I have my serious doubts whether the same good results would have followed forcible dilatation of the cervix, version, and extraction of the child and placenta, had they been resorted to in these two cases, instead of the Porro and Cesarean operations. Before drawing any definite conclusions, permit me to invite your attention to the following three tables:

FREQUENCY OF PLACENTA PREVIA.

No.	Author.	Number of cases.	Number of placenta previa.	Per cent.	Bibliography.
1	C. v. Braun	7,853	15	1/525	16
2	Hugenberger	8,036	42	1/191	16
3	Lomer	6,862	136	1/50	16
4	Winckel (1873–78)	6,324	7	1/903	16
5	Winckel (1879–87)	8,510	30	1/283	16
6	Lusk	1,550	0	0	16
7	Report of Midwives of Saxony	119,553	78	1/1532	16
8	Johnston	?	?	1/573	
9	St. Clair	?	?	1/575	
10	Spiegelberg	?	?	1/1000	32
11	Dupaul	?	?	1/1200	
12	Chroback	30,796	216	1/143	4
13	Philadelphia Lying-in Charity	2,887	17	1/170	4

It is exceedingly difficult to form even an approximately correct estimate of the frequency of this obstetric complication. Among

the thirteen authors here given, Lomer gives the frequency as 1/50; Chroback, 1/143; Philadelphia Lying-in Charity, 1/170; Midwife report of Saxony, 1/1532, and Lusk, 1550. The total number of cases of confinements given amounts to 192,371; total number of placenta previa, 541, or about 1/534 cases.

It may be contended that it is not fair to compare the mortality of placenta previa of the past and present with the mortality of the Cesarean and Porro operations within the last two and a half decades, but to get as much of the truth as possible we must do so. It must also be understood that the present management of placenta previa does not vary much from that which was taught and practised twenty-five or even thirty years ago. The modern Cesarean section was formulated and announced by Sänger in 1872. The Cesarean as well as the Porro operations have had the full benefit of the era of asepsis. So has every treatment of placenta previa. As the mortality of the latter has changed but very little and the mortality of the two former has improved so wonderfully since the introduction of asepsis, the question whether these two operations cannot, with considerable advantage and absolute propriety, be extended in their scope of usefulness becomes a very pertinent one, indeed.

Ford,[2] Donoghue,[14] Dudley,[3] and Boyd[4] have discussed statistics sufficiently, but it will do no harm to look at them again from our own standpoint and strengthen, if possible, the position they have assumed. In this table of mortality of placenta previa thirty authors have been recorded. Drawing the average, the record shows a general maternal mortality of 25 per cent. and a fetal mortality of 65.21 per cent.

MORTALITY OF PLACENTA PREVIA.

No.	Author.	Maternal mortality	Fetal mortality	Remarks.	Bibliography.
		Per cent.	Per cent.		
1	Simpson	40	?	.....	3
2	Tait	40	?	.....	3
3	Wenning	25–33	?	"In selected cases only."	3
4	Schaeffer	25	?	.....	?
5	Barnes	11.8	64	.....	29
6	Read	22.2	?	.....	29
7	Churchill	33.3	?	.....	29
8	Hirst	40	50	"If properly treated nil."	32
9	Ahlfeld	25	?	.....	31
10	v. Winckel	5–10	50–75	.....	31
11	Grandin and Jarman	25	?	.....	22
12	Dorland	30–40	75–80	.....	17
13	Spiegelberg	30	50	.....	16
14	Mueller	23	64	.....	30
15	Cazeaux and Tarnier	25	66	.....	35
16	Charpentier	35	?	.....	33
17	Dupaul	32	?	Also reports mat. mort. of 56 per ct. in 25 cases, 14.	33
18	Schwarz	26	75	.....	33
19	Trask	25	?	.....	33
20	King	22.5	?	.....	36
21	Fritsch	?	50	Two months after birth.	33
22	Braun	?	50	" " " "	33
23	Hecker	?	67	" " " "	33
24	Chroback	9.3	33	.....	4
25	Philadelphia Lying-in Hosp.	23.5	81.5	.....	4
26	Fournier	25–40	?	.....	34
27	Jardin	16.66	66	.....	14
28	Fry	0	64.28	.....	7
29	De Lee	0	55	.....	7
30	Zinke	17.5	?	.....	Author.

Fry,[7] of Washington, and De Lee,[7] of Chicago, have had remarkable success. The former saved fourteen mothers and five children in fourteen cases of placenta previa; the latter had no maternal fatality in twenty-five cases. How many of the children were sacrificed by the latter is not stated. I am free to confess that these two gentlemen have done much for the mothers but very little for the children. Their experience, too, is, perhaps, unique. The doctors and all of the mothers and the children that were born alive must be considered very fortunate. I entertain grave doubts whether Fry and De Lee will be able to go on in their work as successfully in the future as they have in the past; and if they do, I ask in all seriousness, What right have these men to disregard the value and importance of the child's life? In the hands of men of such skill and ability no mother should be lost by Cesarean section, and the fetal mortality could be reduced to a minimum.

Let us now examine the table of the mortality of modern Cesarean section and the Porro operation:

MORTALITY OF MODERN CESAREAN SECTION.

No.	Operator or author.	No. of cases.	Maternal mortality	Fetal mortality	Remarks.	Bibliography.
			Per cent.	Per cent.		
1	Leopold,	50	0	0	.....	14
2	Evarkes,	24	0	0	.....	14
3	Zweifel,	?	3	?	.....	7
4	Ohlshausen,	?	3	...	.....	7
5	Hirst,	?	5	?	"In favorable cases only."	16
6	Dorland,	?	8	?	In hands of skilled operators.	17
7	Freund,	3	0	0	Only one child.	18
8	Gummert,	11	0	9	Only one child was lost and it was dead before operation.	19
9	Reynolds,	23	0	0	.....	20
10	Pollak,	120	⅛ of 1	?	Reports 120 sections on 58 women, 1 death; patient died of embolism after fifth operation.	14
11	Coakley,	?	0	0	On the same patient.	21
12	Evecke,	35	11	28	1. Mother died because of sectio in mortua. 1. Mother died because of pleuritic exudation. 1. Mother died because of septic peritonitis.	22
13	Frommel,	In all the cases in Germany	16	?	Author states that in nearly all the fatal cases the cause of death was not due to the operation, but the treatment preceding it.	23
14	C. B. Reed,	?	5-10	6	Merely gives estimate of.	24
15	Davis,	?	?	?	Gives no figures, but says a single skilful operator may operate on 20-30 cases without a death.	25
16	Grandin and Jarman	?	?	?	No figures, but say if patient is in good condition, with the proper details of asepsis, etc., the patient should recover.	25

The above table is made up of cases and estimates of sixteen authors of this and other countries, and reveals an average mortality: maternal of 4.14 per cent., fetal of 13 per cent. Freund[18] states that the danger of Cesarean section is not greater than that of a complicated labor or of an ovariotomy. The operation, indeed, is less serious than any other gynecologic operation which terminates with the loss of an organ. I agree with him heartily. Evecke,[22] referring to the 16 per cent. of maternal mortality of all the clinic cases of Germany, asserts that this high rate is not to be ascribed to the operation but to the previous attempts to deliver. Pollack[20] mentions 120 Cesarean sections performed upon fifty-eight women, with the loss of but one patient, and she died of embolism after the fifth operation. Pause and think!

The mortality of the Porro operation, especially of those collected by Harris[27] from 1876 to 1890, and consisting of 441 cases from 224 operators in twenty-one countries, shows that 274 mothers and

345 children were saved, or a maternal mortality of 37.89 per cent. and a fetal mortality of 22.22 per cent. Hirst[16] estimates the mortality of this operation at 50 per cent., which is probably too high. Lusk,[28] on the other hand, quotes Braun, Breisky, Leopold, Krawanewsky, Franke, Fehling, Tait, the Santa Catarina Hospital, and Carson as having collectively 108 Porro operations with a maternal mortality of 15 per cent. only. These figures compare very favorably, indeed, with the mortality of placenta previa as treated in the accustomed way, by the best and ablest men here and abroad, even since we know of asepsis and antisepsis, namely: a maternal death-rate of 25 per cent. and a fetal death-rate of 65.21 per cent. Besides this, it should always be remembered that the mortality, maternal and fetal, of the Cesarean and Porro operation, while it is positively less than that of placenta previa, even as it stands now, is as high as it is not because of the method of operating but because the majority of women were the victims of previously existing diseases and inflicted injuries or accidents. Among these we have malignant disease and tumors of the uterus and its adnexa; diseases of the pelvis and its soft parts; rupture of the uterus; extensive lacerations of cervix, vagina, and vulva, resulting from forcible dilatation of the os, version, and rapid extraction of child and placenta; excessive loss of blood, and, not infrequently, the introduction of sepsis during these manipulations. Thus, in a condition of extreme exhaustion, due to all or any of the above, the operator is called upon to do his work at the home of the patient, or she is hustled off to the nearest hospital. Some have been known to die on the way; others have died during, and some shortly after, the Porro or Cesarean operation that was performed. The wonder is not that so many have succumbed, but that the majority have survived the ordeal notwithstanding.

I firmly believe that the Cesarean and the Porro operations are perfectly legitimate and elective procedures in all cases of placenta previa, central and complete, and especially so when the patient is a primipara, when the os is closed and the cervix unabridged; when hemorrhage is profuse and cannot be controlled by tampons, and separation of the placenta around the internal os is difficult or impossible.

That there are cases of "partial" previas that may be successfully treated in the old way I do not doubt. Perhaps a small majority

1 UP TO THE PRESENT.

	Uterine sutures used.	Duration of operation.	Results to		Bibliography.	Remarks.
			Mother.	Child.		
ditions.	?	?	Died.	Died.	1	
ion into f uterus. rus. No	Silk.	35 min.	Died.	Died.	10	Rigidity of cervix suggested malignancy; autopsy confirmed the suspicion.
and pla- d. Hose rainage.	Silk.	25 min.	Lived.	Lived.	1	Recovery of mother complete in twenty-six days; child died in a few hours of imperfect closure of foramen Botallo.
Hyster-	?	?	Lived.	Lived.	15	Child died one month old of bronchitis.
ld easily ine con- peration.	Catgut.	45 min.	Lived.	Lived.	14	Mother recovered completely in twenty-one days, in spite of exhaustion and symptoms of collapse.
ry little buted to	Catgut.	30 min.	Died.	Lived.	11	Mother died in eleven hours after operation.
ner mar- o tourni- ry little	Silk.	?	Lived.	Lived.	12	Result in Cases 7 and 8 very remarkable and gratifying.
top from hyster- om pla-	Catgut.	30 min.	Lived.	Lived.	13	

of all the placenta previa cases can be treated successfully, as to the mothers at least, in the manner of Fry and De Lee. But what of the large minority of mothers who succumb and the great majority of children that are sacrificed at once?

The question presented is a very serious one and should be earnestly and profoundly considered by everyone, and when confronted with a case of central or complete placenta previa or any other variety where dilatation of the cervix is impossible or difficult, the patient and her immediate friends should be made acquainted with all the facts concerning both methods of treatment. If properly presented, it is doubtful whether the majority of women would select forcible dilatation, version, extraction and the like. The severe, often violent, and sometimes vicious, always unkind, and rarely just judgments that have been passed upon the abdominal surgeons, even in the recent past, has, fortunately for us and humanity, subsided in the main. But ever and anon, loud echoes of the old clang and clamor of by-gone days, dimmed somewhat by distance and hushed by success, revibrate through the professional and social atmosphere of the present.

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DISCUSSION.

DR. WILLIAM J. GILLETTE, of Toledo, Ohio (by invitation).—I think I can say but little in addition to what Dr. Zinke has so well presented in his paper. Possibly it will be of interest if I tell you the reason why I preferred a Porro operation in my case, which he mentions. Just prior to this operation I had done a Porro for obstruction of the pelvic outlet by a large fibroid tumor in a patient who had been in labor for about sixty hours. A Porro in this case was necessary by reason of the large size of the tumor. The patient made such an easy recovery that it impressed me deeply. When I was called to see this case of placenta previa by my friend Dr. W. W. Grube, I found the room looking very much like a slaughter-house. The patient's pulse was extremely rapid, probably 140. When I arrived, however, the hemorrhage had for the time ceased. On making a digital examination I found the cervix rigid and the dilatation not as large as a silver quarter. The condition of the patient was such that evidently further hemorrhage in any considerable amount would certainly prove fatal. She was as white as marble. When asked what we could do for her in this desperate condition, I said to the physicians present that it would take a much braver man than myself to dilate this rigid cervix forcibly, shove my hand through the placenta, and deliver. I was not brave enough to do it, for it could not be done without further great loss of blood. The patient was but a short distance from a hospital, and I advised her removal there, urging that a Cesarean section be done; and to this the friends and physicians agreed. There was no difficulty attending the operation. The abdomen was scrubbed carefully and opened, and a rubber ligature thrown around the cervix. Those who have done this operation know how easy it is to make an incision through the abdominal wall, pull out the uterus, and throw a ligature around it. As soon as this is done there can be no further hemorrhage. The danger, so far as hemorrhage is concerned, is absolutely at an end. I opened the uterus and delivered the placenta, then loosened the ligature. But as soon as

loosened, blood would ooze from about the cervix, and from the condition of the patient I concluded it would be much better to let the rubber cord stay there and amputate the uterus above it, which was done. I believe there is a distinct field for the classical Cesarean section and the Porro. In those cases that are so desperate I believe the Porro will prove to be the better operation, because we know the hemorrhage is at once controlled; if infection occurs, it must be the fault of the operator, and not the operation. In the classical Cesarean section there are dangers that follow it which do not pertain to the Porro-Cesarean section. In the first place, we have the danger of secondary hemorrhage. Emergency cases cannot stand further great loss of blood; in fact, a few ounces may determine the difference between life and death. With the classical operation there is always more or less danger of sepsis. The uterus does not contract firmly after great loss of blood, as it does in normal cases, and, of course, that means retention of débris and consequent added danger of infection. These patients are illy able to withstand infection.

DR. J. H. CARSTENS, of Detroit, Mich.—The paper covers so much ground that it is almost impossible to touch on all of the points that were brought out. A great many of the cases reported in the literature seem to have been treated very poorly indeed, and I am beginning to think that the obstetric art has been lost. The idea of having a case of placenta previa for three or four or six weeks without doing something, and allowing the woman to go on until the last minute, until her life is endangered, is certainly poor treatment. The point is simply this: our obstetric teaching in this country is a little weak. I think we need to stir up the profession a little in that regard. Certainly in the ordinary case of placenta previa the practitioner ought to be able to either tampon or put in a rubber-bag to get a little dilatation of the cervix, then turn the child, and let nature do the rest. You stop the hemorrhage by pulling down the feet. Once in a while you may lose a patient, but not very often. When I was in active obstetric practice I saw an average of two hundred cases a year; I saw many cases of placenta previa, and lost but few of them.

In looking over my record I find that I have had twenty-three cases of placenta previa, and of these three mothers died; one three hours after delivery, evidently from shock; another four hours after delivery from convulsions, and one died while I went to my office to get chloroform and instruments, which did not take fifteen minutes. Of the twenty-three children, eleven died; but of these six were dead when I was called. In some cases they had been dead *in utero* ten days or more. Three cases were premature from five and one-half to seven

and one-half months, and two died during delivery. As far as the children are concerned, the mortality is large, but is due to the condition, and will be about the same, no matter what form of treatment is instituted. The maternal death in my cases, I am sure, could not be equalled by Cesarean section, and, although I want to be progressive, I cannot see that the Cesarean section in cases of placenta previa is an improvement over the Braxton-Hicks method, except in very rare and select cases.

The child will sometimes die. And here comes in the serious question Dr. Zinke touches upon—namely, whether the life of the child should be considered or not. Of course, the child's life should be considered. Everyone of us when we practised obstetrics were very much chagrined to have a dead child born. But I do not think the life of the child *in utero* must be considered in comparison with the mother's life. The question is simply this: will most of the cases recover after Cesarean section, or will most of the cases recover after placenta previa treated otherwise? With the present statistics we cannot tell. The statistics given by the essayist show a large mortality. Will we have any larger mortality from placenta previa if treated by version or by Cesarean section? That is the question. Can the general practitioner perform a Cesarean section better than he can do version? I do not think he can. I think the general practitioner who has had two hundred cases of labor is more competent to turn and have fewer women die than if he attempts to perform Cesarean section on them. You may say that he can take his patients to a hospital and secure the services of a skilful abdominal surgeon. But he cannot always do this. These cases occur away off in the backwoods, and before a skilled surgeon gets there, or before the patient is brought to the hospital, she has bled to death. I have seen them die in fifteen minutes. What is the use of preaching and advocating Cesarean section in these cases when it is utterly impossible in the vast majority of instances to get a physician who is competent to do the work or to bring the patient to a hospital. Those are the principal points, and I cannot see that we should advocate Cesarean section in most of these cases. There is no doubt that in certain specific cases, where we have the facilities, if the woman has a slight hemorrhage before labor sets in, we can pack and stop the hemorrhage, send her to a hospital, get everything ready, and do Cesarean section. But there comes in the other question, Are you going to do a Porro, which is so much better and absolutely indicated in those cases where there has been a great deal of interference (because the danger of septic poisoning after a Porro is almost nothing), or will you do a classical Cesarean section? If you do the latter you

will preserve the uterus in a young woman, which has been interfered with by three or four physicians; attempts at version having been made, and the cavity packed with all kinds of dirty stuff, she will have puerperal sepsis as sure as possible. In that kind of a case, if you do a Porro-Cesarean section you will probably save the woman's life, and she will not get puerperal septicemia. But at the same time you unsex a young woman, which you do not want to do if she is only twenty-one years of age. If she has had half a dozen children and is forty years of age it is different. Instead of advocating strongly Cesarean section, either a Porro or the so-called classical operation in these cases of placenta previa, we will do a great deal better if we try and teach the fine obstetric art a little more.

Dr. Edward J. Ill, of Newark, N. J.—I should like to offer another argument that Dr. Zinke has not advanced—that is, the remote results after forcible dilatation. Forcible dilatation means nothing but a tearing of the tissues into the broad ligaments and vagina. Such a woman is *never* well again. A woman who undergoes Cesarean section is a well woman in four weeks. My brother has had occasion to do two Cesarean sections on the same woman within a year, and she was just as well the second week after the second operation as she was after the first. We have had occasion to do eleven Cesarean sections within four years, and an easier and simpler operation I cannot conceive. I have a horror of placenta previa. During the first three months of my practice my sixth, seventh, and eighth cases of labor occurred in one week; all three were cases of placenta previa, and all three died. I was of the opinion that I had missed my vocation. Now, Cesarean section opens up a new field for us in this class of cases. I do not see why a Porro should be done in a simple case. The hemorrhage is almost nothing, provided you do not put any pressure on the cervix. In our earlier cases we compressed the cervix to check the hemorrhage; in our later cases we have not done anything of the kind, and we did not get a hemorrhage. The loss of blood was less in the later cases than in the early cases. As soon as the placenta is separated the hemorrhage ceases. In the septic cases we know it is different; we cannot save the uterus. It must be removed.

Dr. Joseph Price, of Philadelphia.—The author of the paper belongs to that class of men whom we expect to be conservative, and in looking at the subject from that standpoint we cannot help appreciating a contribution of this nature and at this time. Many of us begin to feel that obstetrics as a scientific branch of medicine is a lost art. With the death of Parvin we lost one of the best and purest obstetricians then teaching in America.

I may be mistaken in a few instances, but all the so-called professors of obstetrics in this country at the present time are standing on two stools and are afraid they will fall between them. They seek ministerial and political influence in their community to get obstetric professorships, then they practise gynecology, and at present I have not a single professional acquaintance in America who is a pure obstetrician. For a while I practised obstetrics almost exclusively. I slept on three chairs and an ironing-board for six or seven years and attended from five thousand to seven thousand cases of labor, and I thought I knew a good deal about the subject of obstetrics; and I probably had a larger head then than I had a few nights ago when I was asked to do a Cesarean section on a woman who had had five eviscerations. The attending physician had made an effort to deliver the child during the day, without avail, and finally recommended that the child be removed by a new method. I was asked to see the woman. I did so. She was placed on the operating-table for preparation. I had my apron on, and I counted the sponges. I walked around the table, and instead of taking the knife, I said to the attending physician, if you will permit me I will apply the Tarnier forceps in this case. I did so immediately, and the delivery was an easy and quick one. It was a plain case, and I wondered, because I knew something about the use of the forceps, why she had failed to engage that head in twenty-four hours.

The present position of obstetrics in this country is a lamentable one. I will simply make a few allusions to fortify the position of the essayist. Cases of placenta previa are not in the hands of the class of men that the author of this paper represents. At present they are in the hands of the least competent class of obstetricians that have ever practised obstetrics in this country. I have had a large number of students from time to time who sought practical instruction and experience in obstetrics, and I have no doubt there are a dozen of them in this hall at the present time. It cost them nothing except four or five dollars a week for board. They had the privilege of attending three or four cases of labor a day, sometimes. They could attend them as long as they liked. It chagrins me to see the scant attention which the art of obstetrics receives at the present time. I recall a small class in obstetrics in connection with a medical college. It has a little maternity connected with it. The professor delivers the baby, removes the placenta, ties the cord before the students, and that is the extent of the practical experience he gives them in this important branch of medicine. He has threatened that he would not sign their diplomas unless they attended his obstetric

clinics once in a while. While I was engaged in obstetric work, I got students from the University of Pennsylvania, the University of Maryland, and the University of Virginia. Those students appreciated the opportunity to study practical obstetrics, and some of them made very good obstetricians. I allude to these things to emphasize the importance of paying more attention to practical obstetrics in medical schools.

The discussion has covered about all the important points that one can allude to in this connection. What Dr. Carstens has said is very good. While considering the importance of saving the mother, we all know very well that many of the attempted deliveries in placenta previas are criminal assaults. That is about all we can call them. Men like Dr. Zinke, who have had a large experience in practical obstetrics, have been good general practitioners, and they have given up large obstetric practices, and by painstaking apprenticeships, hard study, and practical work have become gynecologic specialists. Very few have become specialists in obstetrics, I regret to say. There is not enough attention paid to obstetrics. There has never been a premium on practical obstetrics. I asked Dr. Parvin once what sort of fees he got for attending women in confinement who lived on Nineteenth and Walnut Streets, and he told me that once he attended a woman who lived about Nineteenth and Walnut Streets (in the absence of Dr. Albert Smith), who was well to-do, who had elegant outfits, stables, and coachmen, and he said he sent them a bill for $100, and it was sent back with the complaint of an overcharge. With reference to this matter of obstetric fees, as far as I can learn, the largest fee ever obtained in New York for attending a case of obstetrics was $300, and $10 for a subsequent visit. This is not a coachman's salary, because we not only have to give him house and board, but clothes, and many other things. Cases of placenta previa in the hands of the old-fashioned practical obstetrician should be perhaps quite as safe as in the hands of gynecologists, who substitute for the ancient and barbarous methods of delivery a Porro operation, and if the specific rules governing one as to the election of the method to be adopted are observed, the mortality from Porro operations should be *nil*. It should likewise be *nil* from Cesarean section. One gentleman has reported twice or thrice a Porro operation. In all probability it was his first Porro, and may be he is a general practitioner; I do not know. If so, it strengthens my point—namely, that it was the first Porro in the hands of a general practitioner, and it was a successful one. That has been the history of about all Porro operations—that they were done by general practitioners. I may say that in nearly every city in this country

Porro operations for the first time were done by general practitioners or by men with a limited experience in abdominal surgery. They all recovered, notwithstanding they were delayed operations, after some attempts had been made at delivery, and malignancy recognized late, and the operations not done well, but successfully done.

I value the contribution of Dr. Zinke, because it will set us to thinking, and particularly the class of men who are capable of thinking and practising.

Dr. James F. Baldwin, of Columbus, Ohio.—It seems to me that when we come to read Dr. Zinke's paper and consider the care with which he has hedged around this proposed operation we will all agree with his conclusions—even our friend from Detroit. I think I would put some "ors" where he puts "ands." I fully agree with Dr. Price as to the education of obstetricians. I have repeatedly discussed this subject in our State Society. I practised obstetrics a good many years, and I think I know something about it. I agree also with Dr. Price and the essayist as to the ease with which Cesarean section may be made. I was a general practitioner when I made my first Porro operation. I had made perhaps a dozen abdominal sections, yet I operated at midnight, without trained assistants or nurses, and in a cellar. We had two coal-oil lamps to give us light, but the operation was made without a particle of trouble, and the patient had a short and easy convalescence. What I could do then, in my ignorance and with those surroundings, any physician in the State of Ohio should be able to do now. The late Lawson Tait advocated and urged the operation of Porro because it was an operation for the general practitioner with the poorest possible surroundings. I do not believe, nor does the essayist believe, in making a Cesarean section or Porro operation for all cases of placenta previa. We know that simply the peculiar cases, the bad cases, which he describes in his paper, should be operated on.

The essay is a valuable one. It will encourage the general practitioner to watch his cases carefully, and when he finds that they cannot be delivered promptly and safely by the usual methods of the obstetrician, then he should operate himself, or call in a surgeon if he can get one. It is going to save many lives, but it is important to emphasize the dangerous conditions, for if it goes out from this Association that all cases of placenta previa should be operated upon by Cesarean section we shall have a very large mortality. I have had two Cesarean sections, three with the Porro; all simple; the mothers and children all saved. But still in Columbus we have had six other Cesarean sections in the last twenty years, since the use of modern methods, and

the mothers have all died, so that the mortality of Cesarean section is probably not as low as the figures of the essayist would place it. I have talked with a good many professional friends who are obstetricians of the old school, and their mortality in cases of placenta previa, like that of my own, has been small. Nearly all the mothers were saved. My own mortality as to the fetus has been large. I always make an effort when I introduce my hand to catch a foot, and while my arm is plugging the cervix to feel for an instant of the cord. If that is not pulsating, I know that the fetus is already dead, and proceed to make a deliberate delivery. Such fetal mortality should not count against the ordinary methods of treating placenta previa, since the fetus is dead from the hemorrhage and not from the treatment.

DR. F. BLUME, of Pittsburg, Pa.—In 1884, while visiting Schroeder's clinic in Berlin, I made the acquaintance of Dr. Lomer, formerly assistant of Crédé, and at that time of Schroeder. Lomer had just published in the *American Journal of Obstetrics* his valuable paper on "Placenta Previa," which since has been quoted so frequently, and which was also cited by the essayist. The management of placenta previa as advanced by Lomer has been almost universally accepted, and, though the results are by no means satisfactory, the fetal mortality still being great, there is up to the present day no method of treatment known which gives better results and could be justly recommended.

It has been stated that better training of the obstetricians would improve the results in the management of placenta previa. This cannot be said with reference to the statistics given in text-books and by the essayist, for they represent the work of large clinics conducted by eminent specialists. These experts, however, do not always see the cases under favorable circumstances. A large percentage of them have been under the care of midwives before the services of the clinic are sought for, and on his arrival the obstetrician finds the patient not in a promising condition. The fact that in a large number of the cases skilled help comes rather late may to a certain degree explain the unsatisfactory results as shown in these figures. What the results are in general practice we do not know.

The low mortality of the Cesarean and the Porro operation as shown here in the statistics is certainly encouraging, and seems to justify the suggestions offered in the paper. But a careful study of these statistics will show that such brilliant results are obtained only by expert operators and under favorable circumstances. The death-rate of the Cesarean section in general practice is unknown. Harris, of Philadelphia, a few years ago placed it at about 50 per cent.

If we look upon the statistics from this point of view we certainly cannot endorse the suggestions of the essayist. Dr. Zinke's paper is worthy of earnest consideration, it is a step in the right direction, yet it deals with the subject in too radical a manner. While under certain circumstances the Cesarean or the Porro operation may be the only proper method of delivery in a case of placenta previa, I do not think that at the present time we are justified in recommending these operations as a routine treatment of this complication.

Dr. William H. Humiston, of Cleveland, Ohio.—This is a very important subject, and I think Dr. Zinke has very clearly given the indications for this rare operation. I believe it will be only in rare instances resorted to, but for such cases as have been detailed by the author and by Dr. Gillette and others, I think the plan of treatment should be endorsed.

We know that obstetrics is not practised as carefully as it should be, but I am proud to say that in our city we have a lying-in hospital in which the results obtained are second to none. The gentleman who is in charge of that institution is here today, and I know the members of this Association would like to hear from him—Dr. Hunter H. Powell.

Dr. Hunter H. Powell, of Cleveland, Ohio (by invitation).—I thank you for the courtesy extended to me to occupy five minutes of your time in speaking on this subject. There are so many gentlemen present who are more competent to entertain this Association that I hesitate as a visitor to say very much.

Dr. Price has so forcibly discussed the subject of obstetrics that it is really almost useless for me to say anything on it. But it so happens that I occupy a rather unique position here today. I presume that I am the only gentleman present who has taught obstetrics for over twenty-five years to the entire exclusion of gynecology. The comments, therefore, that have been made by Dr. Price and others meet with my sincere approval. Some of the gentlemen present have heard me express practically the same views on previous occasions.

I listened with a great deal of interest to the paper of Dr. Zinke, and the fact that it was read before this Association by so eminent an obstetrician is abundant proof that the professors of obstetrics in this Association have not been doing their duty in the past twenty years regarding the subject of obstetrics. The paper is virtually an arraignment of the professors of obstetrics in this and other societies. The charms and fascinations of surgery and of gynecology have been so great that old-time obstetricians like Barnes of London, like Fordyce Barker of this country, are few and far between. Physicians have become so fascinated by pelvic surgery that many of them would

rather practise gynecology than obstetrics, hence the low position in which the science and art of obstetrics is found today. It is due to you, gentlemen, those who are professors of obstetrics and gynecology, to raise the standard. In a great many colleges perhaps only a dozen lectures on obstetrics are given during the year, and inferior men are employed to attend to the text-books. There is very little practical instruction in obstetrics given. Many of you have been carried away by the dash and brilliancy of surgery, so that obstetrics has been neglected, and you have been arraigned by one of your own members in very vigorous terms—Dr. Price. What has been said to you on the subject expresses my own views very thoroughly and clearly.

With reference to "Cesarean Section in Cases of Placenta Previa," can we imagine such a paper being read ten or fifteen years ago? Just think of it! I do not mean to say, with the skilled men we have today, and with the advances that have been made in surgery, and with the wonderful results following Cesarean section, that there may not be an exceptional case where Cesarean section in a primipara can be performed, with an os that will not dilate and the woman bleeding profusely. But it will have a bad effect, if it goes out from this Association, with its approval, that the time has come when Cesarean section should be considered prominently in cases of placenta previa, because very soon there would be nothing left for the obstetrician to do. Instead of advising the pursuance of such a course, I would urge those gentlemen to return to the legitimate teaching of obstetrics as long as they hold professorships in medical colleges on this subject.

It so happens that I have had considerable experience in the treatment of cases of placenta previa, some of them having been treated under unfavorable conditions. I am unable to give accurate statistics on the subject, but my results have been very favorable. Therefore, I cannot understand why so many physicians advocate under any condition Cesarean section in cases of placenta previa. As has been said by Dr. Humiston, I have had charge of a maternity for sixteen years. Ninety-two per cent. of the deliveries were primiparas, and I think our results will compare favorably with those of other institutions. Obstetric teaching has been carried on all the time, two or three students being assigned to a case. This will give you an idea of how the maternity is managed or conducted. Personally, if I find that a case is lateralis I usually puncture the membrane very early, and the further it is off from the placenta previa centralis the quicker I puncture the membranes. A very important point when classical version has been decided on is to take all the time necessary to dilate rather than to attempt to get the child through the lower segment of the uterus too

rapidly. This is the way in which the uterus is injured, the practitioner being too hasty to deliver the child. In a case of placenta previa with the Braxton-Hicks method one can bring down a limb without introducing the hand. I believe we are perfectly justified in sacrificing the life of the child if necessary to save the mother. I am a firm believer in that. The desire to save the child by Cesarean section may be strong, particularly where a Cesarean section can be done quickly, but I do not believe the well-trained obstetrician should ever feel obliged to perform this operation in a case of placenta previa.

DR. A. GOLDSPOHN, of Chicago, Ill.—I wish to call attention to the fact that the statistics of which we make use are gathered from medical men who are either active members of some medical society or who are more or less actively connected with colleges, hospitals, infirmaries, or some similar institutions. These constitute perhaps one-half of the total number of medical men. The other half are men who do a great deal of service for the populace, but they have very little incentive to publish what they do, and certainly none at all to publish their bad results or non-successes if they venture a little bit beyond their capacities. This fact must be remembered in estimating the statistics that are given in the valuable production which Dr. Zinke has given us. Now it is very evident, in the hands of one who is able to do an abdominal section skilfully, that a Cesarean section will be a very eligible method of treatment. Out of two different plans of treatment, anyone so qualified, whether he operates in a cellar or in a hospital, will know how to provide the necessary antiseptic and aseptic conditions. It is distinctly different with one who is not accustomed to such operating. These gentlemen (the general practitioners) do not attack fibroid tumors, ovarian cysts, etc., but refer those cases to men whom they know to be qualified, and for us to say that those men who are in the habit of referring to us these other cases requiring abdominal section shall do Cesarean section, if it is to be done, is certainly unwise, and there is no doubt that a great mortality would result if we were to advise any such course.

With reference to what has been said regarding the teaching of obstetrics and the remuneration of the obstetrician, it is very evident that the present conditions are deplorable. It is also very essential that associations like this should recognize this fact, and bring it to the attention of teachers in general, so that such instances as I have before me can be fully considered. For example, I know of one medical college in Chicago that graduates the greatest number of students every year, that has the largest and best equipped laboratories, that is making immense strides in surgical matters, yet its departments of

obstetrics and gynecology are attended to entirely by one single individual. I claim that justice cannot be done to both obstetrics and gynecology by any one man if he wants time to eat and sleep.

DR. EDWIN RICKETTS, of Cincinnati, Ohio.—The last speaker has mentioned the fact of the inability of the general practitioner to deal with these cases. I want to say that while we, as members of special societies, are making progress, our friends in general medicine are not as slow as we would sometimes want others to think they are. I know of twelve Cesarean and Porro sections that have been done in the Miami Valley successfully within a radius of seventy-five miles, or one hundred miles of where I reside, by general practitioners. I will grant you that the charge is correct, that the cases have not been reported.

As to transferring these patients to hospitals, while it is true that many advantages may be had by so doing, yet there are many *disadvantages in trying to transfer patients to institutions of a certain kind, and with the present trained nurses we have it is easier for the trained nurse and the physician to travel, and with less risk, than for the patient to be moved about.*

In a recent Porro operation for cancer of the cervix, in which the patient had been allowed to go for a long time, and it was not the fault of the physician in charge, I want to say that the family physician could not have the patient operated upon just at the time she ought to have been, because there were conditions and circumstances to be overcome that I knew nothing about.

The paper is a timely one. As has been said by Dr. Price, the remuneration of obstetricians is very poor in comparison with other work. From a competitive standpoint, the general practitioner who does obstetric work has to compete with the midwife. I say here what I have said repeatedly at the meetings of the Ohio State Medical Society, that it is our duty to do everything possible to throw all the work we can into the hands of women physicians rather than to lend our influence toward midwives. We know that many cases of sepsis develop through the uncleanliness of midwives, not only in such places as Cincinnati and Chicago, but in other places. It is through them that infection occurs in nine cases out of ten. Within the past two years I have traced to one midwife a number of cases of sepsis following delivery. In view of this fact I must vigorously condemn such action.

THE PRESIDENT.—I wish to remind you, Dr. Ricketts, that the subject under discussion is not midwives.

DR. RICKETTS (resuming).—I am speaking of the cause of trouble in these cases and the method of treating them. I consider it germane to the subject.

DR. ZINKE (closing the discussion).—I have investigated and studied this subject carefully and have weighed seriously every word in my paper. I see no reason why I should not stand by every word the paper contains. I have not spoken to the general practitioner alone, nor for the benefit of the gynecologist, or the obstetrician especially, but to the whole profession here or elsewhere.

Notwithstanding the great skill in obstetric manipulations of the practitioners of the past, and in spite of the remarks made by my friend Dr. Price, I maintain that we are teaching obstetrics today as well in the United States as abroad. It is true, we have not for teaching purposes the same amount of material at our disposal as the teachers of obstetrics in other countries, but he who claims that the art of midwifery is not well taught in this country today has failed to post himself.

Why should the obstetrician of today have no right to practise gynecology? Do not these two branches go together? They, in reality, belong to each other. They may be taught separately, but should be practised together.

It is not the fault of the teachers of obstetrics of the present day that the art is so little understood by the majority of the present generation of doctors. We teach the art well. That is all that should be asked of us. That men refuse to learn obstetrics and practise it but little and badly must not be charged to the teachers of this department. If men do not want to practise obstetrics, and do not propose to study it thoroughly; if it is considered a waste of time to do so, other conditions, not the teachers, must be blamed. I make no secret of the fact that I teach and practise midwifery, but that the principal source of support for myself and family is derived from the practice of gynecology and abdominal surgery. Were I to devote my time exclusively to the practice of obstetrics, it would simply be a financial impossibility for me to be with you today or any other time. The obstetrician as a specialist, though he worked day and night the year in and the year out, does not earn enough to make a respectable living for himself and those who depend upon him, because the *pay* for obstetric service is so miserably poor. I do not know of a single teacher of obstetrics who confines his work to this branch to the exclusion of everything else; if they do not practise gynecology they do general practice. And why should you forbid them to do so? But this is foreign to the subject under discussion.

Many of you will see the day that not only the teacher of obstetrics, but the general practitioner, when confronted with a case of placenta previa, will earnestly consider the propriety of performing Cesarean section instead of forcible dilatation, version, and extraction; and, if

one is not able to do a Cesarean section himself, he will look around and say to himself: Whom can I get to do this for me? And when it comes to the old practitioner, who is so well able to practise "the good old method" better than he can perform Cesarean section I say: This is neither sound argument nor good science. I contend that the man who is able to manipulate a case of placenta previa by the tampon, dilatation, separation of the placenta, version, and extraction of the child, ought to be able to perform Cesarean section to far better advantage to both the lives concerned. Wherever version and the other manipulation may be done for the treatment of placenta previa with safety Cesarean section can surely be done. We can teach students how to make a Cesarean section much more easily than instruct them how to apply the tampon, separate the placenta, rupture the membranes, and deliver by version and extraction. How many cases do you think are necessary for a man to see before he ought to attempt the management of a case of placenta previa in this way? An intelligent man may learn enough from one Cesarean section to go and do it himself the very first time he has an opportunity. That is my experience with students. Several of them, hardly a year in practice, have for other reasons than placenta previa, performed Cesarean section successfully, and have saved both mother and child. This alone speaks volumes. Have they managed their cases of placenta previa by the aid of dilatation, separation, version, and extraction with the same success to mother and child? I have my serious doubts.

There are strong arguments in favor of the position I have taken. To advocate Cesarean section in all cases of placenta previa would be a grievous error. That the operation, however, has its place in the management of these cases should be accepted by all.

GALLSTONE IN THE COMMON DUCT.

Remarks upon the Frequency, Symptoms, Diagnosis, and Treatment.

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The importance of the subject is apparent, inasmuch as in this country, according to Mosher[1], gallstones are present in 6.94 per cent. of all people—in other words, about one person in every fifteen has gallstones—and, furthermore, that of those so afflicted, death was attributed to the presence of gallstones in 11+ per cent. of cases—that is to say, in every 1000 deaths 76 are attributed to gallstones. In round numbers, 13 per cent. of all cases of gallstone show chronic obstruction of the choledochus by calculi.

Conradi, as quoted by Courvoisier, found gallstone in the common duct in about 15 per cent. of all cases. The writer, who has performed thirty-two operations for gallstones, has encountered four cases in which there were one or more stones in the common duct. In one case there was a single stone and that in the choledochus; in two cases one stone in the choledochus and many in the gall-bladder; and in one case the stones were found in the gall-bladder, common and hepatic ducts.

Mosher's tables, compiled from the Johns Hopkins Hospital records, are very instructive. The one relating to the frequency of gallstone in the common duct shows that in 115 cases in which gallstones were found at autopsies, 86 showed the stones in the gall-bladder alone and only one in which the stone was in the common duct alone. There were, however, in all, 15 cases of stone in the common duct, and in all but one case its presence here was associated with stone in other portions of the biliary passages. These statistics do not fully show forth the great frequency of stone in this

[1] Johns Hopkins Hospital Bulletin, August, 1901, pp. 258-259.

location. They bring to our view only the cases in which the stone has become lodged in the common duct, and do not present the much larger number of cases of acute jaundice with passage of stone along the common duct.

In order to better interpret the symptoms of stone in the common duct, it is well to observe the commonly accepted classification, viz.:

1. The acute form of obstruction due to passage of stone.

2. The chronic form of obstruction of the common duct due to impaction of the stone or to a stone retained in the duct, yet movable in a dilated portion.

In the latter case the stone may act as a ball valve, preventing at times the flow of the bile into the intestines. In the first division we have the regular form of biliary colic of Naunyn. In it there is the sudden onset of pain, agonizing in character, more or less intermittent, and lasting from one or two hours to as many days. The pain is located in the gall-bladder region or epigastrium. It radiates, is ofttimes severe in the back, under the right shoulder-blade, and sometimes extends as high as the shoulder.

Not infrequently it terminates suddenly, or it may abate for a time and recur with increasing intensity, until finally it entirely, suddenly or by gradual degrees, disappears. At the onset frequently the patient vomits. In all cases where several hours are required for the passage of the stone, jaundice is present with varying degrees of intensity. An examination of the stool during the next few days usually discovers a gallstone.

This is the old classical form of bilious colic. We have all met with many cases of this sort. In it acute pain and icterus are the characteristic features. If the stone is successfully passed the patient gradually regains his accustomed health, suffering, however, for a few days from loss of appetite and much tenderness on pressure and motion in the right hypochondriac region.

In the chronic form the stone in the journey from the gall-bladder to the duodenum is arrested somewhere in the common duct, most frequently at the duodenal end of the duct, next most frequently at the first portion of the common duct, and the least frequently in the central portion. The stone may be impacted and immovable (as it was in one of the writer's cases), slightly movable or freely movable in a dilated portion of the duct or ducts. When impacted and immovable there is complete obstruction to the flow of bile through the choledochus, and deep, persistent icterus.

If the stone be even slightly movable, there is usually at times a

passage of bile along the duct, past the stone, into the duodenum. In such a case the icterus varies in intensity, so that the difference in color of the skin and sclerotic upon different days is apparent to the patient and physician. There is also a variation in color of the stool and urine. In a recent case of mine (No. 4) the jaundice deepened always after a period of pain in the hypochondrium. The patient would suffer from a deep, quite severe, and persistent pain for a few hours. Near the end of the pain and for a few days afterward the icterus would be more intense and then gradually lessen, the stool becoming slightly colored by bile and the amount of bile in the urine diminishing.

This variation in the color of the skin is a diagnostic symptom of great importance, for when present it points strongly to a retained choledochus stone, but one in a dilated portion of the duct. The relation between these two conditions has been made very clear by the investigations of Fenger.[1] A deep jaundice, persistent and long continued, means permanent obstruction of choledochus, such as is produced by an impacted, immovable large stone in the duct or the pressure of a tumor in the region of the gall-bladder or ducts.

In case of obstruction due to a tumor the gall-bladder is usually distended, while in case of obstruction of the common duct by stone the gall-bladder is contracted and cannot be palpated in about 90 per cent. of cases.

It must be remembered in this connection that a large stone impacted in the cystic duct may, in certain positions of the gall-bladder, especially where there are adhesions between the pylorus and gall-bladder, or the gall-bladder also packed with stones, cause pressure, obstruction of the common duct, and this likewise may be intermittent in character. This is, however, a very rare occurrence.

There are not wanting cases of a stone, even a large one, in the common duct in which there is no jaundice. This is because the stone is imprisoned in a dilated portion of the duct, and floats about without completely obstructing the duct. Here the colicky pains are usually present and tenderness and not infrequently intermittent fever.

The fever attending the chronic choledochus obstruction is quite characteristic. It is intermittent, very much resembling in its course a malarial fever. In a gallstone case a continuous fever with profound systemic involvement argues the presence of septic cholangitis or abscess of the liver.

[1] American Journal of the Medical Sciences, 1896, pp. 125-207.

Treatment. It is now quite generally agreed that cases of acute obstruction of the choledochus with jaundice are amenable to medical treatment. The Carlsbad cure, either at the springs or at home, is ofttimes quite efficient. In our own country a sojourn and course of treatment at the French Lick or West Baden Springs not infrequently afford relief. Another line of treatment usually of benefit is morphine for the relief of pain, hot fomentations to the hypochondrium, and liberal doses of oil until the bowels act copiously.

These methods of treatment are not always curative, even when they for a time relieve the symptoms, but that they often have a favorable influence upon the course of the disease there can be no doubt. Chronic obstruction of the choledochus by stone is a surgical disease. In the light of post-mortem findings there can be no doubt that there are occasional instances in which the calculus may lie in the choledochus in a quiescent state while the bearer may be unconscious of its presence. This is highly exceptional. The rule is that the patient is a confirmed invalid, and that his invalidism becomes more and more pronounced as the time passes along. Sooner or later he must come to the operating-table if he will regain his health. This is a pertinent question: How long shall one suffering of lithogenous choledochus obstruction wait before submitting to operative interference?

Kehr, whose vast experience renders his opinion of great weight, thinks that three months is quite long enough to wait. His record of cases shows great danger in longer delay. The cases seldom come under the observation of the surgeon until a much longer time than this has elapsed, so that he is ready to proceed as soon as the diagnosis is confirmed and the patient prepared for the work. In one of my cases (No. 4), associated with cholecystitis and pericholecystitis, the patient was operated upon at the end of six weeks, and it is my belief that a longer delay would have added to the dangers of the active procedure, so that I do not believe we can lay down any fixed rule as to the time of operation.

Some of the milder cases recorded have gone on for years without producing alarming symptoms, while others have developed alarming symptoms very early in the course of the disease, so that delay would have been disastrous. Certainly, if there have been clear evidences of common duct obstruction for a period of three months, there is little or no hope of relief outside of surgical means. Longer delay is useless, while, on the other hand, the symptoms may be so urgent as to demand immediate procedure.

The mortality attending the choledochus operation, when the obstruction is not associated with cholangitis, empyema of the gall-bladder, intestinal fistula, or cancer, is about 15 per cent. It is not my purpose to describe in detail the technique of the different methods of operation, only to consider briefly a few points. The incision which seems to meet with the most favor is the vertical one along the right border of the rectus muscle. The incision should be ample, and may be supplemented by a transverse cut anywhere along the upper border of the original one.

The guide to the position of the gall-bladder is the notch or fissure between the right and quadrate lobes of the liver. It is very common to find the gall-bladder concealed, indeed buried, by adhesions to it and the under surface of the liver, of the colon, duodenum, pylorus, or omentum. The adhesions binding these organs together must be separated before the gall-bladder can be uncovered and brought into view. The gall-bladder, hepatico-duodenal ligament, and duodenum serve as landmarks in determining the course of the common duct. The common duct, as a rule, runs along the posterior surface and upper border of the hepatico-duodenal ligament.

With the finger in the foramen of Winslow and the thumb opposite upon the anterior surface of the hepatico-duodenal ligament, the operator may begin at the cystic duct and palpate the common duct from right to left throughout its whole course to the entrance of the duct into the duodenum. It would seem that the presence of a stone ought to be easily determined, but, as a matter of fact, small stones are often overlooked. When the adhesions have been separated, as a rule the operator can, with his finger in the foramen of Winslow, lift up and pull forward the common duct so as to render it accessible.

Fenger's chart showing the anatomical relations of the portal vein and hepatic arteries to the common duct is accurate and very helpful, enabling one to remember the most favorable line of incision. The lower half of the anterior portion of the first part of the common duct is partially covered by the main trunk of the portal vein. The vein lies behind the middle portion of the common duct.

The upper and anterior part of the middle portion of the common duct is the most favorable one for incision and removal of the stone. As a majority of the stones are located in the duodenal end of the duct, and this is of difficult access if the stone be impacted and immovable, recourse may be had to duodenocholedochotomy, first per-

formed by McBurney. McBurney[1] reports six operations with one death, a mortality of 16⅔ per cent.; Mayo Robson[2] reports seven cases showing two deaths, a mortality of 28.57 per cent. It will thus be seen that in this procedure the mortality is considerably greater than that in choledochotomy, which, according to Kehr,[3] is about 10 per cent.; so that while McBurney has introduced a method that at times will be of great service, when it is possible the stone should be pushed back into the middle portion of the duct and extirpated through an incision in its walls. Fortunately the stone is usually movable, so that this manipulation is possible. I cannot find, in the large number of cases reported by Kehr, that he ever found it necessary to do a duodenocholedochotomy.

There are dangers in incising the common duct in its first portion, on account of the location of the portal vein. Kehr reports several cases in which he incised the cystic duct and carried the incision onward to the common duct. Certainly, the incision should be along the superior portion of the common duct in this location. In two of my cases, during the operation the cystic duct was dilated, once by a slender forceps and only to a slight extent, while in the other it was dilated by gently forcing the little finger into it and then the ring finger into it and through it. No harm, only good, resulted in both cases, as in one case we obtained a free flow of bile, and in the other we were able to squeeze through the dilated duct a gallstone of considerable size.

In suturing the incision in the common duct, if it is much dilated, placing the sutures as suggested by Elliott, before the stone is removed, will be found advisable. As a rule only the soft stones should be crushed. Needling is probably quite as dangerous as incising the duct and extracting the stone, and is much less satisfactory.

The lumbar stab of Morris has been much written about of late and has been employed frequently, especially by English surgeons. It would seem to have a limited field of application, inasmuch as gauze packing, with or without the rubber drainage-tube, has been found very efficient.

The writer believes that all cases of choledochotomy should be drained, and unless it can be demonstrated by the passage of the sound into the duodenum or the injection of fluids along the

[1] Annals of Surgery, October 18, 1893.
[2] Mayo Robson: Diseases of the Gall-Bladder, p. 269.
[3] Kehr: Gallstone Disease, p. 135.

common duct into the same organ that the common duct is freely patulous, the gall-bladder should also be drained in all cases in which the cystic duct is pervious.

Cholecystenterostomy has a limited place in choledochus obstruction. In many cases the gall-bladder is contracted and the cystic duct impervious. In both cases anastomosis of the gall-bladder with the bowels is contraindicated.

Mayo Robson's case 303, page 309, shows what may follow in any case of joining the gall-bladder to colon or duodenum, leaving an obstructing stone in the choledochus; also Kehr's case reported on page 264 of the work already quoted. In both cases the fistula occurred as the result of morbid processes. Both patients were invalids, and both patients of necessity came for operative relief. The operation of cholecystenterostomy is easily and quickly done if the gall-bladder be distended, and may serve as a temporary expedient in case the patient is not able to bear the larger operation of removal of the obstructing stone. I am persuaded that Kehr's method of draining the hepaticus with a rubber tube will be proved of value in cases in which bile containing infective material is poured out on incising the duct, and this method will probably do away with the method of the lumbar stab.

The recent advances made in the surgery of the bile ducts is most gratifying. Only a few years ago our only surgical resources for chronic choledochus obstruction were cholecystotomy and crushing or needling the stone. Now, in addition to these are added incision of the choledochus and extraction of the stone, duodenocholedochotomy, cholecystenterostomy, cholecystotomy with injection of solvents.

The writer's limited experience with these cases convinces him that one should not essay to engage in surgery of the biliary ducts without a mastery of the technic of these various methods. He should also possess such knowledge and judgment as will enable him to determine quickly, as the case presents itself, the best method to employ in a given case.

CASE I. *Single soft stone in the common duct; gall-bladder of normal size, containing fluid but no stone, not opened; the stone in the common duct crushed; many adhesions, in the separation of which an opening was torn in the portal vein; profuse hemorrhage; attempted suture of the vein a failure; the hemorrhage stopped by ligating a portion of the walls of the vein around the opening; recovery of the patient.*—The patient was brought to me by Dr.

Hollingsworth, of Princeton, April 22, 1899. He was a man of about forty years of age, who gave the following history: for many years he had been the subject of occasional attacks of hepatic colic, the attacks varying in duration and frequency. In some attacks he was moderately jaundiced and in some not at all. The present attack began three months previous to my seeing him. It was ushered in by severe pain. Jaundice appeared in a few days, and has continued to a greater or less degree till the present time. The patient is now deeply jaundiced, but states that this feature of his case varies from day to day. The stools were acholic, and urine deeply colored by bile pigments. There was a continued low grade of fever, loss of appetite, and marked emaciation. There had been no severe attacks of pain for several weeks. There was, however, marked soreness in the region of the gall-bladder.

Examination revealed no tumor in that region. He was operated upon April 23, 1899, at St. Vincent's Hospital, in the presence of Dr. Ferguson, Dr. Hollingsworth, and Dr. Hester, Dr. Ferguson assisting and Dr. Hester administering the anesthetic.

A vertical four-inch incision was made through the abdominal wall, beginning at the tip of the tenth rib. Many adhesions were encountered, so that it was difficult to uncover and expose the gall-bladder. It was small, containing a little fluid but no stone. Finally, after prolonged search, a stone was found in the common duct near the duodenum.

A considerable effort was required, in separating adhesions, to bring the stone into a position in which it was possible for me to determine its location and character. Finally, it was demonstrated that the calculus was not fixed, but had a small range of motion, and that it was for the most part soft. With a gentle, yet firm, pressure with the thumbs and fingers it was crushed into small fragments; in fact, after a few minutes' work in crushing, the calculus seemed to entirely disappear, all except two small, irregular fragments which were by gentle pressure forced into the duodenum.

Some time during this effort we were surprised by the sudden appearance of profuse venous hemorrhage. I persisted in my efforts until I had, as I thought, effectually disposed of the fragments of stone. Now, turning my attention to the hemorrhage I found it profuse and altogether venous. It was checked by finger pressure until the effused blood was cleared away, when it was apparent that we had wounded the portal vein.

On removing the finger from the rent the blood would rapidly

well up from a small, irregular opening. By widely retracting the wound and holding the right lobe of the liver well up the vein could be distinctly seen. With a very fine curved needle I attempted to close the rent with sutures, but failed on account of the inaccessibility of the vein and because of the stitches tearing out.

By experimenting I discovered that with the thumb and index finger I could pick up the vein in such a manner as to close the opening and yet retain a considerable portion of the lumen of the vein. While holding the vein in this manner, my assistant, Dr. Ferguson, secured a catgut (No. 2) ligature around a portion of the vein just beneath the grasp of thumb and finger. This ligature held securely and entirely checked the bleeding. The blood was carefully mopped out of the exposed portion of the abdominal cavity, some iodoform gauze placed over the vein with the ends hanging out of the incision, and the liver let down into normal position. The sponges used in packing off the field of operation were removed and the upper angle of the incision closed.

I watched the patient with the greatest solicitude for several days. On the third day the dressings were found saturated with bile. Whether this bile was poured out from the common duct through an opening resulting from a slough due to injuring in crushing the stone, or through an opening in the gall-bladder resulting from an injury to the gall-bladder, inflicted by a needle during the operation, I am unable to say, but I believe the latter was the case.

The bile continued to discharge from the wound three weeks, when it ceased and the wound closed. The gauze packing left over the injured vein was removed at the end of the fifth day, and there was no hemorrhage. The patient went on to a perfect recovery, the jaundice gradually disappearing. The patient left the hospital in five weeks, and in a few weeks took up his work again and has remained to this time in excellent health.

CASE II.—Mrs. G. was referred to me by Dr. Holland, of Bloomington, Indiana. The patient was about sixty-four years of age. She gave the history of several attacks of hepatic colic in former years; these were attended by slight jaundice. The present attack began about five weeks previous to my seeing her. I saw her at St. Vincent's Hospital, October 6, 1900. She was intensely jaundiced and was an extremely sick woman. There was not much elevation of temperature, but great prostration. There were numerous purpuric spots upon the surface of the body. The tongue was dry and furred, the countenance dejected, and intellect clouded. Alto-

together, I regarded the case as unfavorable, but felt impelled to endeavor to relieve the biliary obstruction.

She was operated upon October 7th at St. Vincent's Hospital. The gall-bladder was small and packed with stones. Two medium-sized stones were found in the common duct near the junction of the cystic and hepatic ducts. These stones were impacted and immovable, and lay just behind the portal vein. The adhesions were so firm it was impossible to draw the duct into an accessible point. A faithful effort was made to crush the stones, without success. A probe could be passed through the cystic duct backward and upward into the hepatic ducts, but not into the common duct as far as the stones. A small amount of bile came into the gall-bladder on removing the probe. The cystic duct was gently dilated with a slender forceps, and an anastomosis made with a small Murphy's button between the gall-bladder and small intestine. The patient bore the operation well, but in a few hours passed into a stupor from which she never rallied, dying at the end of thirty-six hours, probably of cholemia, the operation, however, hastening her death. No postmortem was obtained.

CASE III. *Stones in the gall-bladder and one large stone in the cystic duct; choledochotomy; recovery.*—Mrs. M., aged sixty-one years, had been in fair health until the commencement of the present attack, December 19, 1900. Then she was seized with pain in the epigastrium, vomiting, and a slight rise in temperature. There was soreness in epigastric and right hypochondriac regions. Slight jaundice appeared the first day of attack, and gradually deepened, with slight remissions, until date of operation, January 25, 1901.

There had been a history of intermittent attacks, extending over two or three years, of seizures of pain in epigastrium, but no typical attacks of biliary colic and no appreciable jaundice. During the present attack there had been marked loss of flesh, so that the weight had diminished twenty or twenty-five pounds.

Examination of the patient revealed marked jaundice and distinct evidences of emaciation, though the patient was still stout. She complained of soreness in hypochondrium, increased on change of position and upon walking. There was no tumor in the gall-bladder region and no fever. The stools were acholic and the urine contained much bile. There was troublesome itching, but no eruption upon the skin, and no evidence of hemorrhage from any of the mucous membranes or beneath the cuticle. The patient was weak and somewhat despondent. The diagnosis of obstruction of the

common duct was based upon the above history, the chief points determining the diagnosis being the history of having passed two or three stones upon former occasions, the remittance of the jaundice, the rapid loss of flesh, and the absence of a tumor.

The operation was done by me at the patient's home near Arlington, Indiana, with the assistance of Dr. Barnum and Dr. Smith and a trained nurse, January 25, 1901. A four-inch incision was made in the right semilunaris from the costal arch downward toward the umbilicus. The opening thus produced was finally supplemented by a transverse incision two inches long, beginning at the upper end of the incision. There were quite numerous but recent adhesions between the liver, colon, and gall-bladder. The adhesions were easily broken up, so that the gall-bladder under the surface of liver, the hepaticoduodenal ligament, and the duodenum were brought into view.

The bladder was greatly atrophied and could be felt to contain a mass of stones in the free lower portion. The finger carried along the course of the common duct readily detected a large stone in that duct. It seemed fixed in the duodenal extremity of the duct, but it was found, by applying a little pressure, it could be moved upward toward the hilus of the liver. There seemed to be a dilatation of the common and hepatic ducts in which the stone floated freely, but it invariably returned to the duodenal end of the common duct as soon as manipulation of it ceased.

The finger readily entered the foramen of Winslow and passed beneath and beyond the stone, so that the hepaticoduodenal ligament with the choledochus and portal vein and hepatic artery could be pulled forward and downward into full view.

The gall-bladder was first incised and the stones removed. They seemed contained in a well-defined cavity. They proved to be numerous small ones closely crowded together. They were scooped out, and we counted forty-nine of them. There were others lost and uncounted, but most of them were quite small, being but little larger than a grain of wheat, but all were distinctly faceted. Not a drop of bile was seen in the gall-bladder, and we were unable to pass a probe into the cystic duct. The whole lumen of the gall-bladder seemed obliterated, except a small pocket at the distal extremity which contained numerous small stones.

Our attention was now turned to the stone in the cystic duct. The finger was carried into the foramen of Winslow behind and beyond the stone. It was pulled downward and forward into view.

The portal vein could be seen to the right of the stone and the hepatic artery felt above and behind the stone. An incision was made through the hepaticoduodenal ligament and duct over the anterior surface of the stone. Two rows of stitches were placed so as to effectually close the incision after the stone was removed. As placed, the ends of each suture were caught with a catch forceps and laid aside. The next suture was treated in the same manner.

Five sutures were required in the first row, in which we endeavored to include only the peritoneal and muscular layers of the duct. In the second row there were three sutures, including the ligament and outer coat of the choledochus. The sutures were properly separated and the stone gently pried out. There was now a gush of bile, the amount of which astonished me. Fortunately, we had effectually shut off the general peritoneal cavity and covered the surrounding viscera with gauze pads. After mopping out the bile the common duct was explored by passing the index finger into the incision in the duct and along the dilated portion of the duct upward to the hilus of the liver and a short way downward to the duodenum. No other stone could be detected. The sutures were tied, and we had a dry field. The pads were removed and the toilet of the peritoneum made. Several strips of iodoform gauze were placed over the gall-bladder and packed around above and below the incision in the common duct. A rubber drainage-tube wrapped around with gauze was carried down and placed near the incision of the duct. The wound was now closed by through-and-through silkworm-gut stitches, except a part of the upper portion, through which portion the ends of the gauze and tube extended.

The time required for the operation was one hour and ten minutes. The patient rallied well. She was rational at the end of an hour, and did not complain of excessive pain. She did very well after the operation. The second day she vomited a little. Dr. Barnum reported to me that he had found upon his visit the dressings saturated with bile. The patient had a normal temperature and good pulse. The bowels moved the second day by enema, and again the third day, when the stool was found stained with bile. From this time on the recovery of the patient was progressive and satisfactory. The gauze and tube were removed the fourth day, and the wound lightly packed with gauze. The discharge of bile gradually diminished and finally disappeared as the wound closed, which was accomplished at the end of the twentieth day. Three

months later, Dr. Barnum reported the patient as having entirely recovered and enjoying excellent health.

CASE IV. *Gallstones in the gall-bladder, common and hepatic ducts; gall-bladder distended, cystic duct dilated, and dilatation of first third of common duct and the hepatic duct to size of a small intestine; the stones (two small and one large) in dilated portion of common and hepatic ducts; enlarged gland in hepatico-duodenal ligament as large as a hickory-nut; cholecystotomy, further dilatation of cystic duct, and delivery of stones from common duct.*—Mrs. B., aged fifty-three years, was seen by me June 8, 1901, with Dr. Theodore Wagner. The following is the history of her case: mother died at thirty-eight years, of some pulmonary disease. Father died at eighty-two years. He was all his life a well and strong man. He died of typhoid fever. The patient is the mother of five children, and has always enjoyed good health, except that at intervals for the last four or five years she has had severe attacks of epigastric pains. Pains were at first very severe, but lasted only a brief time, one-half to one hour. The pain was located in the stomach and liver regions.

Two years ago she had a severe attack of pain and soreness in the liver region. Gallstone was not suspected. Never jaundiced until present attack, which began five weeks previous to my call. The attack began with pain in right hypochondrium and epigastrium. Itching of skin began in a few days, and a few days later jaundice appeared. The jaundice gradually deepened, but varied in intensity from time to time. Urine dark-colored and stools acholic. The patient suffered intermittent pains, but had no fever.

Upon my examination the patient was found deeply jaundiced and complained of irregular attacks of pain in right hypochondrium and in the back and under the shoulder-blades. She was around the house, but feeble. We estimated that she had lost thirty pounds during the five weeks' sickness. Physical examination revealed a small tumor in the gall-bladder region. Our diagnosis was gallstone in the gall-bladder and in the common duct. The case was too acute for a malignant disease, and the intensity of the jaundice was intermittent.

She went to the hospital June 10, 1901, and was operated upon June 11, 1901, at the Deaconess's Hospital.

Operation.—A vertical incision at the border of the right rectus muscle was employed. On entering the abdominal cavity the distended gall-bladder came immediately into view. It contained bile

and stones. The ducts were palpated. A largely dilated portion of the first part of the choledochus, hepatic duct, and of the cystic duct was apparent. The dilated portion of the common and hepatic ducts was as large in circumference as two fingers, and about two inches long. Stones could be felt in the part dilated. The gall-bladder was aspirated and then opened at its upper portion and a large number of stones pressed out. These stones varied in size from that of a small pea to those as large as a hazelnut. When the gall-bladder was emptied a finger was thrust through the incision into it and down to the cystic duct. The latter was found dilated. A small finger was carried through it into the common duct. This was withdrawn and the ring finger carried, with a little urging, through it.

It was now found possible to press the three stones found in the dilated portion of the common and hepatic ducts into the gall-bladder. One of the stones was quite as large as the end of my ring finger. It was faceted and smooth. This stone, before it was forced into the gall-bladder, could be made by a little pressure to disappear under the liver, but in a little time it would float down again. Search was made in the common and hepatic ducts for more stones, but none was found. A sound or probe could not be passed downward beyond the dilatation in the common duct toward the duodenum. Search was made for a stone in this portion of the duct, but none was found. A mass about as large as a hickory-nut was found near the insertion of the duct into the duodenum. It felt like a soft stone, and was tested with a needle puncture and found to be soft tissue. We decided it was an inflamed gland, and let it alone. The gall-bladder was stitched to the peritoneum and fascia and the remainder of the incision closed. A soft-rubber drainage-tube was carried into the gall-bladder and through the cystic duct into the hepatic duct.

The patient recovered easily from the operation, the only unfavorable symptom being bleeding from the gums, which began the fourth day. It was not profuse, but continued, more or less, for several days. Great quantities of bile were discharged through the tube for weeks, when gradually it grew less and the urine cleared up, while the stool became stained brown. The patient was slightly jaundiced for nine weeks. She now (September 11th) has been free from jaundice four weeks, and is rapidly increasing in health and strength. At one time, eight weeks after the operation, when as yet no bile had passed in the normal way, we contemplated joining the

gall-bladder to the duodenum by a Murphy button. Fortunately, a week's delay obviated this necessity.

She remained in the hospital six weeks. Nine weeks after the operation, first noticed a distinct coloring of the stool by bile. She is now, thirteen weeks after the operation, free from jaundice. The fistula is very nearly healed and the urine and stools normal. She is rapidly gaining strength and weight, and is doing a little light work.

DISCUSSION.

Dr. Edwin Ricketts, of Cincinnati, Ohio.—I desire to congratulate Dr. Dunning on the good results he has obtained in operating for gallstones in the common duct. It shows what good work will do. I have not been as fortunate myself as he has. In a series of fifty cases of gallstones I have had but two to deal with in the common duct, and my mortality has been 50 per cent. The operation for stone in the common duct is certainly one of the most perplexing procedures that can befall the surgeon. One case of mine, a man, aged sixty-three years, in whom the stone was found to be in the common duct, the stone was of the most peculiar shape of any I have ever removed. The stone had a worn crease around it. This man fifty-two hours after the operation had suppression of urine. The stone in the main was hard.

The other patient was a woman, aged twenty-seven years, the stone being of the soft variety, and the common duct had to be opened. It was not with great difficulty that the stone was removed. When it came to putting in sutures it required a good deal of determination and manipulation to put them in correctly and work in such a small space. If those gentlemen who advocate non-interference in gallstone cases came across those instances to deal with, I am sure a greater impetus would be given to gallstone surgery. We have but to refer to the statistics of Kehr, which were given by the essayist, to bear out what this means. When gallstones are diagnosed early, followed by a prompt operation, I consider it one of the easiest and one of the most satisfactory operations that comes within our domain. As has been stated, when we have to deal with a stone in the common duct it is quite different. It has been claimed that to get down into the common duct, or to probe it from the duodenum, it is almost an impossibility. But thanks to Kehr, who has shown us and proven that even the duodenum can be opened and the common duct can be catheterized through it, and washed out. In some experimental work on the liver, conducted on the cadaver this summer, the small catheter

used for ureteral work by Kelly was made use of and passed from the duodenum through the common duct between the hepatic, then removed and passed through the common duct into the other hepatic. This was demonstrated with satisfaction before a medical society in Troy, Ohio, and it was quite a revelation to the doctors present. The operation reported by Dr. Dunning shows what prompt work will do, and I think it will bear out the statement that cases of gallstones, like many other things, should be dealt with as soon as possible after the diagnosis has been made.

Dr. X. O. Werder, of Pittsburg, Pa.—I have been very much interested in this subject and in the paper, and I congratulate the essayist on the admirable contribution he has given us. I wish to mention a procedure which I have followed in one case, which I believe is new and original, and which, perhaps, in some exceptional cases, may be of service in the surgery on the common duct.

The patient was a man, aged fifty years, who had been suffering for several years from attacks of biliary colic and jaundice. At the operation I found the intestines, stomach, and omentum so firmly bound and adherent to the lower border and posterior surface of the liver that it was extremely difficult to break up the adhesions. After I finally succeeded in placing my hand under the liver it was impossible to feel the gall-bladder, but I could locate the stone. The anatomical landmarks having all been wiped out, so that it was impossible to see what I was doing, I used the stone as a guide and cut down over it. I found then that I had not only opened the common duct, but also the duodenum, which I sutured immediately. I also put in a few sutures in the common duct, intending to tie them after the delivery of the stone, which was one of the ball-valve variety. In delivering it I lacerated the common duct, which was dilated and sacculated to a size much larger than my thumb. The delivery of the stone was followed by a gush of bile which flooded the field of operation, and, as compression served to arrest the flow only temporarily, it was impossible to proceed with the operation, for as soon as it was removed a stream of bile poured out. To overcome the complication I decided to insert a small rubber tube into the common duct and pass it out through the papilla into the duodenum, to carry off all the bile into the bowel, and to keep the field of operation clean, so as to enable us to proceed with our work. I then tried to tie the sutures I had passed, but I found in making traction on them they tore out. I put in new sutures, but they all tore out, so that the suturing of the common duct had to be abandoned. My intention had been to leave the tube only temporarily until I had succeeded in placing the sutures, but under the circumstances I thought it a good plan to leave it, and pushing the intestinal end of the tube into the bowel until at least

half of it protruded into its lumen, I packed the wound with gauze and closed the abdomen. The operation was done over a year ago. The patient made a good recovery, and only a few weeks ago told me that he never felt better in his life, though the tube has never been found since.

I do not wish to recommend that procedure in every case, but in such exceptional cases as this it may serve a useful purpose in this operation.

The essayist referred to cases of stenosis of the pylorus, which is caused occasionally by adhesions. I have operated on such a case within the last year, in which the diagnosis of dilatation of the stomach, due to stenosis, probably carcinoma of the pylorus, was made. The woman was emaciated to a skeleton, and had been unable to retain anything on her stomach. On opening the abdomen I found the pylorus adherent to the gall-bladder; there was quite an acute bend or kink in the pylorus, producing almost complete obstruction of the pyloric outlet. I did a cholecystostomy, broke up the adhesions, and the patient made an excellent recovery, and has had no further trouble since.

Dr. Miles F. Porter, of Fort Wayne, Ind.—There are one or two points I would like to discuss in connection with this subject, and one is, the fact that one of the essayist's patients died from suppression of urine. It has been my misfortune in certainly not less than three cases operated on in the presence of cholemia to have suppression of urine occur afterward, followed by death. I have not seen this cause of death referred to often in these cases, but I believe it occurs quite frequently. I remember speaking to Dr. Andrews, of Chicago, of its occurrence, and he said that it had occurred in his cases on more than one occasion. The thought came to me, if this is found to occur frequently, that we might have in intravenous transfusion of normal salt solution a means of tiding these patients over the dangerous period. Perhaps after the bile has been discharged for a length of time, until the system has rid itself of the poisonous elements which produce cholemia, suppression of the urine will not occur.

Concerning operations upon the gall-bladder and the question as to the desirability of cholecystectomy as compared with cholecystotomy or cholecystostomy, I think the decision will depend entirely on what the operation is made for. In the vast majority of cases the symptoms usually attributed to gallstones are not symptoms of gallstones, but cholangitis and cholecystitis that result from gallstones. The original cause of the inflammation is a cholelithiasis. On top of the cholelithiasis we have germ infection, and then comes the gallstone colic. The point I want to make with reference to closing the incision in the gall-bladder, or stitching the edges of the gall-bladder to the abdominal wound, is this,

that the removal of the stones is not sufficient to cure those cases of gallstones in which there is already present a marked inflammation of the gall passages. Prolonged drainage of the gall-bladder is necessary, and, therefore, in these cases the gall-bladder should be stitched to the skin. One objection to this method is that the fistula remains open, but it should remain open until the inflammation subsides, when it can easily be closed. Often it does not remain open as long as you would like it if improperly stitched. If you need prolonged drainage, the gall-bladder should be stitched to the skin. The opening will not then close until you close it. If you stitch it to the peritoneum it will close, oftentimes too early.

DR. M. STAMM, of Fremont, Ohio.—I would like to ask a question for my own information, namely, whether suppression of urine is not due to acute dilatation of the stomach. I think Kehr, or some German author, dwells on that important point after operations on the gall-bladder. He reports a number of cases of acute dilatation of the stomach in which there were symptoms of suppression of urine. I had a case of hepatectomy fourteen years ago, the first, I think, that was ever made. I reported it in the *Journal of the American Medical Association*. The patient was a woman, aged sixty-two years, with congenital absence of the gall-bladder. She had symptoms of gallstones for six months, and among them pain over the region of the gall-bladder. When I cut down I could not find any gall-bladder, but found three gallstones, and she died thirty-six hours after the operation. Postmortem examination revealed two quarts of biliary fluid in the stomach. About ten years ago, at a medical meeting, I asked whether death may not have been due to the acute dilatation of the stomach or to the large quantity of fluid in the stomach. When I read Kehr's experience, I was fortified in my opinion that a great many cases of suppression of urine are due to acute dilatation of the stomach. I have had two cases since. I have washed out the stomach and found large quantities of biliary fluid. Washing out the stomach relieved the urinary symptoms and vomiting, and immediately changed the clinical picture.

DR. WILLIS G. MACDONALD discussed two points which had been brought up in connection with the subject, one of which related to the suppression of urine in cases of chronic obstructive jaundice, and particularly with relation to the time when operation should be undertaken. This was a difficult thing to fix, and yet he believed three months was entirely too long a time to wait when the symptoms were distinctive of this condition; that during these three months, through the poisonous effects of the circulating bile in the blood, we had too frequently established a condition of albuminuria associated with hyaline and granular casts. All that was needed was anesthesia on top of

this condition to bring about acute congestion and suppression of urine. He believed this was one of the frequent causes of death in neglected cases where operation should have been done a long time before. The effects of the circulation in the blood of these toxic agents in chronic obstructive jaundice not alone involved the kidneys, but these patients suffered seriously from circulatory disturbances. They bore the shock of operation very badly. Many of these patients had a bad and high pulse-rate associated with the operation, which ought not to cause that condition under other circumstances. Sudden death associated with these was not an unknown factor, and one which was not very readily explainable by modern pathologic examinations. Another condition was the extreme frequency with which secondary hemorrhages were associated with operative intervention in old cases of chronic obstructive jaundice. He had seen this happen too frequently—a simple oozing from a cholecystotomy from the interior of the gall-bladder or an oozing from stitch-holes in the wounds that had been made, this continuing, and the patient going on to death with exhaustion. In the last year he had had occasion to treat some of the more severe types of cases, and in the matter of secondary hemorrhage he thought he had an agent of some considerable value in adrenalin. The first case he injected the bleeding gall-bladder with adrenalin, it simply being put in a sterilized solution of glycerin and water. In later cases he had packed the gall-bladder with a solution of 1 : 1000 of the adrenalin chloride, and it seemed to be very effectual.

Dr. Dunning (closing the discussion).—I am very grateful to the gentlemen who have so freely discussed my paper, and it is hardly necessary for me to say much more.

Regarding the time we should resort to operative procedures, we must be governed, as I endeavored to show in the paper, by the conditions which arise. Many cases of chronic obstruction of the bowels will not show any very acute symptoms, and there will be no deep cholemia present. For instance, I have a case under my observation now that I saw a day or two ago for the first time, who has had a chronic obstruction of the common duct for more than a year. The patient is slightly jaundiced. The jaundice is intermittent in character. He is about, attending to his duties part of the time. There is no sign of cholemia in the case. It is a fact that under the Carlsbad or the saline treatment frequently these cases make a recovery after three months, so that where there are no acute symptoms three months is not a long time to wait. But when an entirely different condition of affairs is present, where we have associated with the obstruction cholangitis, cholecystitis, or pericholecystitis, then we have pyemic conditions going on too frequently, and, in some cases, where we have an obstruction which is almost complete, we have cholemic conditions

appear which will bring about disastrous results in the kidney and blood and the tissues which have been described by Dr. Macdonald. In those cases we should proceed very early to operate.

I was very much pleased in listening to the remarks of Dr. Werder, who has found a new method of overcoming some of the difficult conditions that are present in some of these cases. I believe that there is a greater field opening for us in this direction of the relief of chronic choledochus obstruction.

EXTRAUTERINE PREGNANCY. CASES AND SPECIMENS.

By GEORGE S. PECK, M.D.,
YOUNGSTOWN.

Case I. *Extra- and intrauterine twin pregnancy; rupture beginning of ninth week; operation during eleventh week of pregnancy.*—W. W., aged twenty-seven years, married, American; residence, Weathersfield, Ohio; seen in consultation with Dr. H. E. Blott, when the following history was given:

Family history good. Has never been sick; menstrual flow commenced at age of fifteen, always regular, and never painful until after marriage. Married September 27, 1899. Last menstrual flow December 20, 1899. February 10, 1900, slight menstrual discharge, very dark in color, and resembling coffee-grounds. February 15th, sudden severe pain in the right iliac region, with nausea, vomiting, and a feeling of faintness; complexion very pale. Dr. Blott was called, and diagnosed a ruptured extrauterine pregnancy.

Hypodermics of strychnine were given, and she continued to improve until February 22d, when she was seen by Dr. Crooks, who catheterized her and removed about three pints of urine. The black, tarry flow continued from February 10th to the 23d, when it ceased, and she was able to sit up.

February 27th I was asked to see her in consultation with Dr. Blott. Upon examination I could detect a small and very tender mass in the right iliac region. My examination was very careful, and yet it caused such intense pain, lasting so long, that I was fearful of a second rupture. The diagnosis was confirmed. She was removed to the hospital (a distance of five miles) February 28th. Upon reaching the hospital she was in good condition, and I decided to give her some preparation for the operation.

March 1st, in the presence of the hospital staff, and assisted by Drs. H. E. Blott and Welch, I made a median two-inch incision,

and found the right tube ruptured and adherent to the small intestines. Upon breaking up the adhesion free blood flowed into the abdominal cavity. The tube was quickly ligated and cut away. The clots and free blood were removed with dry sterilized pads.

Upon examining the uterus it was found to be very large, so much so as to cause me to suspect an intrauterine pregnancy. The incision was closed with three layers of catgut, without drainage.

The patient made a good recovery, and was discharged March 22d, twenty-one days after operation. September 14, 1900, two hundred and sixty-eight days after the cessation of the last menstrual flow, Dr. Blott attended her in confinement, when she gave birth to a healthy seven-pound girl.

CASE II. *Interstitial cornual pregnancy.*—Mrs. K., aged twenty-seven years, American, residing at Alliance, Ohio. Patient of Dr. Lichty. Tubercular family history. Previous health poor. Was married December, 1895; one child, born August, 1897; no miscarriages. Menstruation commenced at sixteen; always regular, but painful until after the birth of her child. Afterward each menstrual flow was excessive, lasting nine or ten days. In March, 1899, menstrual flow was delayed one week; became regular again until September, 1899, when it was delayed again for one week. October 28, 1899, flow very painful for two days, lasting five or six days. Last menstrual flow, November 28, 1899, very painful; lasted ten days; amount excessive, and clots were passed. Felt well through December and January. In February had nausea, vomiting, and headache. February 17th, complained of considerable pain in the pelvis, tenderness in right iliac region, abdomen somewhat full and distended; temperature 100° F., pulse 100. Digital examination revealed uterus somewhat enlarged, with an inflammatory mass in the right broad ligament. Treatment, rest and anodynes. Rapid improvement. March 12, passed several clots from the vagina. Cervix was found dilated, and a curetment was done. Nothing but clots removed. Profuse leukorrhea until April 16, 1900, when she commenced flowing, and passed shreds and clots. Flow lasted until May 16, 1900. Has complained of more or less pain in the right side all the time since December, 1899.

She thought she was pregnant since November 28, 1899. Does not think she was pregnant from the time child was born until November, 1899. She was confined to bed about ten weeks in all, and was sent to Youngstown City Hospital May 13, 1900. Upon examination I could detect a large mass on the right side of the

uterus extending into the broad ligament. The history of the case favored a diagnosis of extrauterine pregnancy, while the pathologic condition found led me to think that I had a myoma of the uterus to deal with. After three-days' preparation I opened the abdomen, and, with a V-shaped incision in the uterus, removed the specimen here presented, which upon examination proved to be an interstitial cornual pregnancy.

The incision in the uterine tissue was closed with two layers of catgut sutures, the abdominal cavity thoroughly flushed with saline solution, glass and gauze drainage inserted, and the incision closed with silkworm-gut. Upon completion of the operation patient's pulse was 128. The amount of drainage was large, and her pulse-rate was 140, continuing rapid for forty-eight hours. At midnight (twelve hours after operation), with a pulse of 140, and after having removed from drainage-tube six ounces of blood, I gave her an intravenous injection of one quart of saline solution, which increased the volume but did not decrease the rapidity of the pulse. The pulse ranged from 140 to 155 during the entire first forty-eight hours, when it gradually dropped to 120, and in seventy-two hours it dropped to 100. The glass drainage was removed at 11 A.M., May 20th, the fourth day. During the first four days I removed from the drainage-tube twenty-three ounces of blood. The treatment was supportive in every particular, and consisted of cardiac tablets hypodermically, saline enemas, and nourishing food. Improvement commenced on the fifth day, and continued uninterruptedly until her discharge from the hospital, five weeks after operation.

DISCUSSION.

DR. HOWARD W. LONGYEAR, of Detroit, Mich.—The report of these cases is certainly very interesting. I have had some experience in operating upon cases of ectopic pregnancy. I had seven cases during a period of little over one year. That was nearly three years ago, and since then I have had but two cases. The last one I did not operate on. The woman had a history something like that of the first case reported by the essayist, and I would ask him why he operated on that one, as the symptoms had apparently subsided, there were no indications of hemorrhage, and apparently death of the fetus had occurred? At least, I judge so from his report of the history. In the case I speak of all the symptoms of extrauterine pregnancy had been

present, even to those of ruptured tube. The patient was a young woman, recently married, with cessation of menstruation. At the end of the eighth week thereafter she began to have extreme pain in the abdomen, so that her attending physician was obliged to give hypodermics to relieve it. After that there was an intermittent flow of blood from the uterus, with some discharge of membranes, etc. It was thought she had a miscarriage, but the attending physician was not able to find anything of that nature. She was, therefore, sent to the hospital, and on examination I found a small mass in the right tube. The uterus was only slightly enlarged. I kept her under observation. Later I gave her an anesthetic, examined her more carefully, but found nothing in the uterus. There was a slight bloody discharge, but no appearance of any decidua left in the uterus. I decided to keep her under observation and not to open the abdomen. As there were no symptoms of hemorrhage, and considerable time had elapsed since the last symptoms of rupture, I concluded to watch the case. I did so, and kept her in the hospital three weeks, when, all symptoms having subsided, she was discharged apparently well. Four months afterward this mass that I had previously felt was absorbed, and two months after that she again became pregnant, and is now in her sixth or seventh month. So that I am sure that these cases sometimes recover after rupture; but, of course, not often, and I would not advise waiting, unless the case should be similar to the one that I have mentioned, with the danger point passed. I believe in immediate operation in all cases of sudden rupture, without waiting, even if the patient is in a condition of collapse. I believe in the use of normal salt solution and prompt operation, paying no attention to the blood in the abdomen, excepting in so far as it is necessary to remove it to clear the field of operation. My experience has been such as to conclusively prove that such blood does not do any harm if left to be absorbed, and that much harm may result from the extensive manipulation often necessary to remove it. The operation is simple, and can be quickly done.

Dr. Herman E. Hayd, of Buffalo, N. Y.—This is such an interesting and important subject that I feel we cannot discuss it too freely. The doctor's specimen is very interesting, also the report of the cases, but we are simply discussing the whole question of extrauterine pregnancy. I think we all agree as to what course should be pursued, and that is to operate at once, just as soon as the diagnosis can be made. Of course, a great many practitioners believe that the diagnosis cannot be made before rupture. But that is not so. A diagnosis can be made, and is often made, before rupture has taken place, and most of us have operated a number of times on cases in which rupture has not occurred. Usually, we do not see these cases until rupture has occurred, then an interesting question that comes up for our consideration is,

When shall we operate? Shall we operate while the patient is in a condition of collapse, or shall we wait a few hours and speculate, in the hope that she will be in a better condition to bear the operation? To my mind there is but one thing to do, and that is to operate at once. It does not make any difference what the condition of the patient may be. If the femoral artery of a patient was severed you would not wait; you would operate at once. The same thing is applicable in cases of extrauterine pregnancy. You can supplement your operative work by having an assistant inject under each breast a pint of normal salt solution, and, if necessary, the solution can be used in the bowel. It is surprising the amount of hemorrhage that takes place, even in cases that have advanced but a short time. For instance, one of the worst cases I have ever met in my professional life was one of tubal abortion. I never saw but one specimen. This case was four weeks old. The tube was dilated, not torn or broken, simply spread open. I found the fetus with the chorionic villi in the clot, and the abdominal cavity was literally full of blood. I was compelled to remove that tube and ovary, because I could not stop the oozing that occurred from the patulous tube. I was surprised to see so large an amount of hemorrhage. I read a paper on that case before the Central New York Medical Association, and it was published in the July number of the *Annals of Gynecology.*

Dr. Walter B. Dorsett, of St. Louis, Mo.—It has been my fortune, or misfortune, to have had seven or eight cases of extrauterine pregnancy, and from these I have learned some very valuable lessons, one of which is that it is possible to make a diagnosis of extrauterine pregnancy before rupture in some instances. Again, the indiscriminate use of the curet should be condemned by members of this Association and of similar societies. I have here some specimens which will demonstrate that the diagnosis of extrauterine pregnancy can be made before rupture. I have one specimen that illustrates that fact. The history of this case is very interesting. The patient, thirty-five years of age, mother of one child, gave a history of excessive vomiting during the time she was carrying that child. She was confined in Columbus, Ohio, and subsequently removed to St. Louis. After three or four years she was again taken with vomiting, cessation of menstruation, and vomited for twenty-one days. During that time frequent examinations were made of the uterus and of the pelvis, but no enlargement of any kind could be found. As the hemorrhage continued for some length of time, I finally concluded to do a curetment. She was put on the table for that purpose. I made a bimanual examination and found a lump in the pelvis. I opened the abdomen and removed this specimen, which shows the fetus *in situ.* It was broken in removing it. It was peeled out of the sac, but did not rupture.

The next specimen I present is one in which the history was similar. We observe this similarity in the great majority of instances of extrauterine pregnancy, and that is, the integrity of the tube is more or less interfered with. Undoubtedly, there was stoppage of the sperm in the tube somewhere; development took place at that time, not allowing the fetus to pass into the uterus. She had enlargement in the pelvis, which was not recognized, and she finally fell into my hands after visiting three or four physicians. I made a diagnosis of extrauterine pregnancy on account of a previous history of gonorrheal infection, as well as a history of sterility. That was the main point. The tumor was removed, and it showed an impregnation of the tube near the ampulla. It is an unruptured specimen.

The next case is one that occurred in the practice of a physician in the suburbs of St. Louis. He came to my office one day and told me he had a case in which he was afraid he had rendered his patient septic. The woman was taken with a hemorrhage. He went to the house, examined her, and, the hemorrhage continuing for some length of time, he subjected her to a curetment. In two and a half days afterward she developed a good deal of pain in the abdomen, with peritonitis. She was sent to the hospital, and was almost pulseless when I saw her. I thought I would have to do a laparatomy. When I passed my finger into the vagina and felt a lump in the posterior cul-de-sac I opened it, and the first thing that came through the vagina was a good-sized fetus. This case illustrates the fact that we cannot impress upon the general practitioner too much the importance of making a thorough examination of the decidua, and, unfortunately, this is not dwelt upon sufficiently in text-books. I believe that Bland Sutton is the only one who has anything to say on the subject, and he says very little regarding the importance of thoroughly examining the decidua for the purpose of determining whether the chorionic villi are passing away through the vagina or not. The absence of the chorionic villi would demonstrate the fact that it was extrauterine instead of uterine pregnancy. Two such cases have come into my hands in which the uterus was cureted for supposed abortion, and the patients came near being killed.

The next specimen is one in which a diagnosis of extrauterine pregnancy was made by a history of sterility similar to the other case, together with the fact that an examination of the decidua was made and no chorionic villi were found present. It illustrates very forcibly the fact that these conditions follow disease of the tubal lining. This specimen shows the stricture occurring near the uterine horn, in which it was impossible for the ovum to pass from the tube into the uterus.

The last case is one in which a diagnosis of extrauterine pregnancy was made, the hemorrhage having occurred in the tube. The tube

was unruptured, and it was recognized and operated upon before rupture took place.

Dr. E. Gustav Zinke, of Cincinnati, Ohio.—I concur in the opinion that the subject of ectopic pregnancy is always interesting, and particularly because new features of it are continually developing. I remember well when the profession first began to realize the frequent occurrence of extrauterine pregnancy how the causes that made the occurrence of it possible were gradually being enumerated and increased in number. It has been my experience that we find cases of ectopic gestation occurring in perfectly healthy women, and the diagnosis is, at times, comparatively easy. But it is by no means so in a large proportion of cases. There are instances in which the diagnosis is extremely difficult, and even impossible. One of my first cases of tubal gestation occurred in a young woman who was pregnant for the first time. The duration of the pregnancy was only two months. The operation revealed a perfectly healthy condition of the uterus, as well as of the tubes and ovaries on both sides, excepting the changes in the tube in which the ovum developed. She became pregnant afterward and went to term. But what is much more interesting is the simultaneous occurrence of extra- and intrauterine fetation in the same patient. These cases are of exceedingly rare occurrence, so rare, indeed, that, when found, the operator, unless familiar with literature, believes it to be the first case ever encountered. I reported a similar case to the Cincinnati Academy of Medicine two years ago, at which time I was told by several members present that the occurrence of this complication was simply an impossibility. I have since then carefully looked up the literature of the subject, and was surprised to see how meagre it was. I was, however, able to collect sixty-eight cases of this kind. These cases range from the year 1708 down to the present. I have searched the literature carefully, and believe I have found every case reported up to this time. I presented a paper on this subject to the Pan-American Medical Congress at its meeting at Havana, February, 1901, the proceedings of which have not as yet been published. In my own case the woman was pregnant, and knew it. There was no bleeding from the uterus at any time. Indeed, there was no other symptom in the case, except that every now and then she would have severe colicky attacks, attended by free and bloody evacuation from the bowels. These gradually subsided at the end of the third month. Excessive vomiting was associated with it. The doctor in charge of the case attributed the vomiting simply to the existence of pregnancy, and nothing else. When I first saw her I found a pulsating tumor to the right of the pregnant uterus. I did not think of ectopic gestation, but simply advised the removal of the tumor. She submitted to the operation, and I removed the ectopic gestation. The true character

of the case was recognized as soon as the abdomen was opened. The right tube had ruptured, and adhesions between it and the omentum, intestines, and uterus were numerous and strong. The adhesions were separated, the ectopic gestation removed, and the specimen revealed, as anticipated, an embryo of about six weeks' duration. The patient made a good recovery, went to the end of term with the intrauterine pregnancy, and was delivered of a twelve-pound fetus. The ectopic gestation, all the suffering the patient endured, and the operation in nowise curtailed or interfered with the progress of the normal gestation.

Dr. C. C. Frederick, of Buffalo, N. Y.—I rise to report the simultaneous occurrence of intrauterine and extrauterine pregnancy in my own experience, three years ago. The case has not been previously reported. The uterus looked peculiar. When I opened the abdominal cavity I said to the attending physician that I believed there was a fetus in the uterus. I was not sure of it, but it looked like it, and sure enough, about eight months afterward, the woman was delivered of a full-term baby.

As to the matter of the discovery of ectopic gestation, or pregnancy, previous to rupture, I have operated over fifty times for ectopic gestation, and personally I have never seen a case previous to rupture. I have seen one case previous to rupture in the practice of Dr. Hayd, but never had a case come to me in which I had made a diagnosis previous to rupture. Whether it was my fault in failing to recognize the condition before rupture or not, I do not know. But every case I have had has ruptured previous to my seeing it. It simply shows how experiences will vary.

Dr. Miles F. Porter, of Fort Wayne, Ind.—What do these gentlemen mean by rupture? I have not seen one of these cases that was not ruptured. If you mean that the amniotic sac is not ruptured, it is a different thing. But I maintain that in this specimen we have a ruptured tube, as I look at it. I want to go on record as saying that I do not believe this is an unruptured tubal pregnancy. I do not wish to question the judgment of Dr. Dorsett; nevertheless, I believe that tube is ruptured. I do not believe one case out of a thousand will pass the twelfth week without rupture or abortion. In a pregnancy I saw of five months the amniotic sac was not ruptured, but the original gestation sac (the tube) was ruptured. I maintain that this tube shows a partial rupture. If this is the fimbriated extremity (referring to the specimen), in a short time you would have in this case a typical tubal abortion.

Dr. L. H. Dunning, of Indianapolis, Ind.—The last case of the essayist brings up the treatment of interstitial pregnancy. What shall we do with the sac that is left behind? There is one of three pro-

cedures from which to choose. I believe in his case the hemorrhage came from the sac—that is, that the hemorrhage into the sac found its way along the incision and out into the pelvic cavity.

Some three or four years ago I met with a case of interstitial pregnancy in which the patient almost bled to death. I had an opportunity to demonstrate a method in that case which I think would have been applicable to the case reported this afternoon, with a view to overcoming the tendency to hemorrhage. (Here Dr. Dunning illustrated this method by the aid of blackboard diagrams.) If we take the fetus out and simply sew up the sac, we have a raw surface from which there is hemorrhage, and the hemorrhage will find its way out through the incision. Therefore, we have got to do something more than sew up the sac. There are three ways open to us. One is to stitch the sac to the abdominal wall and pack the cavity; another is to cut the sac down to this point (indicating) and stitch it exactly as we do in a Cesarean section, but make an opening into the sac by carrying a sound into the uterus and outward into the cavity in which rested the fetus, and thus afford drainage downward. A third method is to cut off the uterus and obviate the danger of hemorrhage.

I will call attention to another point in regard to this method. Dr. Pfaff, of Indianapolis, had a case of this kind which was diagnosed before rupture at five months, and the patient was operated upon. He stitched the sac to the incision and drained. Patient periodically menstruated through a fistulous opening left in the abdominal wall, and this continued for a period of two or three years, showing the pregnancy was interstitial, and that he had really stitched the sac to the incision.

Dr. Dorsett.—May I say a word or two in explanation of ruptured tubal pregnancy? What do we mean by rupture? A breaking away of the wall in which is contained the fetus, followed by hemorrhage. I maintain that the wall in this case is not broken at all. It is simply an expansion of the ampulla of the fimbriated extremity of the Fallopian tube, and this would have, if left alone, eventually been an abdominal pregnancy. What we see in this specimen is placental tissue. I do not deny that. I do not say it is the fimbriated extremity, but that it is part of the placental tissue attached to the omentum and to the intestines.

Dr. Porter.—How did that attach itself to the omentum and to the intestines if the case was one of unruptured tubal pregnancy?

Dr. Dorsett.—It was an abortion, unruptured. A ruptured tubal pregnancy is one in which we have blood loose in the belly. In this case the blood is loose in the Fallopian tube, but not in the belly. This diagnosis was made without any history of hemorrhage. There were no symptoms of any hemorrhage, but soreness on that side.

There was no history of anything having given away in this case. The patient was operated upon when *in extremis*, on account of long-continued vomiting, and recovered. The fetus did not get out of the tube. It is there now.

DR. A. GOLDSPOHN, of Chicago, Ill.—With reference to the explanation of Dr. Dorsett, I will say that these tubal abortions have no business to be brought up in this connection; they are a rather frequent form of ectopic gestation. Tubal abortions are the source of many hematoceles, and are of comparatively frequent occurrence, and we need not bring them up in connection with unruptured tubes. I should say that in the specimen that has been exhibited we have a ruptured tube. I have diagnosticated, operated, and removed an unruptured pregnant tube in five cases. Another such case of tubal pregnancy I had was one in which I removed the specimen through the inguinal canal in conjunction with an Alexander operation. But I had not made the diagnosis beforehand. In these cases there were plain macroscopic evidences of tubal pregnancy, unruptured. But I have never seen it as large as here represented in an unruptured tube.

DR. JAMES F. BALDWIN, of Columbus, Ohio.—Last year I read a paper at our Louisville meeting on the diagnosis of tubal pregnancy, my paper being based on eleven cases in which I had made the diagnosis before rupture. Dr. Frederick has been unfortunate in his experience, in that he has not seen an unruptured case. In all of my cases the diagnosis was verified by macroscopic or microscopic examination of the specimens removed, the microscopic work being done by an expert. In one of the cases, on post-operative examination, we thought there had been an error in diagnosis, since the naked eye could not discover anything, yet the microscopic examination under a low power showed the fetus beautifully in its entirety. I presume that specimen is the earliest of its kind on record. The pathologist still has it in his collection.

I remember that Dr. Goldspohn, during the discussion following my paper, reported some cases which he had seen, but I do not think he has published any of them, as he should have done.

Dr. Dorsett has likewise reported some cases, and I hope he will see fit to publish them, because the general profession is still in ignorance of the fact that these diagnoses can be made before rupture and that operations can then most safely be made. On the 15th of last July I was called at 10 P.M. to see a patient in consultation. I found a handsome young woman, twenty-two years of age, who had been married one year. She had always menstruated with perfect regularity. She had taken no precautions to prevent pregnancy. She had menstruated normally about six weeks before I saw her. On the day when she should have become unwell at her next period she took a

cold bath. She had been in the habit of taking cold baths without regard to menstruation, but on this occasion menstruation did not appear until a week later, when the flow commenced, dark in character, somewhat clotted, and accompanied with pain in the left side of the pelvis. She then went to bed and sent for her physician, who sent for me. An examination showed a tumor to the left of the uterus, apparently in the Fallopian tube, about the size of a pigeon's egg, tender to the touch, and distinctly pulsating. I unhesitatingly told her that in my judgment she had a tubal pregnancy which had not yet ruptured, and advised that she be removed at once to the hospital, where a more careful examination could be made under an anesthetic. By the advice of a lady friend, however, this was declined, and the attending physician was dismissed. Six weeks afterward I saw a telegram that was sent to the firm employing her husband, saying that the wife had just been operated upon in a neighboring city for ruptured tubal pregnancy. Two or three days later I was told that she had died soon after the operation, and I learned some further details as to the case. When I saw the woman in consultation I had made a positive diagnosis of unruptured tubal pregnancy. Another physician was called, however, a "professor" in one of our local medical colleges, who was told of my diagnosis, but assured the patient that nothing was wrong with her, that she had simply taken cold and would soon be all right. Now that woman is dead.

Dr. Lewis S. McMurtry, of Louisville, Ky.—This subject is very important. The older members of the Association will recall the papers and numerous discussions before this Association in those days when the surgical rules and pathology of this condition were not so well understood as now. So far as my experience and observation go, the established knowledge we have at present about ectopic gestation is exceedingly reliable. It has been my observation that most of the anomalous conditions we find in specimens, and of the various departures from known conditions, have been due to inflammatory changes and blood-clots that occur in connection with this condition. In this discussion we find numerous variations. Dr. Price, I see, is present. He has had the largest experience in the surgical treatment of extrauterine pregnancy of any man in the world, and I think the Association would like to hear from him. We would like to have him touch on some of those complicated points in connection with the specimens presented.

Dr. Joseph Price, of Philadelphia, Pa.—This discussion is very important, and if we had one of this character at every meeting of the Association we would save many lives, and some of the wise professors of surgery would not make the comments and criticisms about those who are better prepared to recognize the trouble than themselves.

The difficulties in diagnosis are sometimes quite puzzling. I made a

blunder recently in the case of a physician's wife. He wrote me fully in regard to his wife's condition. I had known her for several years. His discussion of her case was quite full, covering a four-page letter. I wrote him to bring his wife to my office. In my letter to him I went on to say that from his description of the case it would seem to be one very much like ectopic gestation. This physician had seen my brother and myself perform a number of sections from time to time. His wife came to my office, and in examining her I found a little diffuse tenderness in the pelvis, which was not well defined about the tubes and ovaries. The uterus was movable. There was no perceptible increase in its size. There was the delayed period, followed by pain, without the leakage that commonly follows in these cases. I sent her home, with instructions to keep as quiet as possible. A few days later the physician telegraphed me that he would bring his wife to me for operation. I opened her abdomen. I found a sealed tube with a flap door in one side, and removed that side. She made a nice recovery. I might have lost her.

The cases that are recognized before rupture are simply accidents. About every woman with a backache or discomfort of any kind in the pelvic region seeks an examination, which gives physicians an opportunity of recognizing a distended tube before rupture. This is particularly true in the class of cases predisposed to ectopic gestation. All ruptures do not take place the first month. Rupture may take place during the second, third, or fifth week, and if the woman longs for a child, and her husband also, with a delayed period and some discomforts she seeks an examination, and I do not see why a number of these cases should not be recognized before rupture. For that reason alone, in female colleges and boarding-schools, about every girl receives an examination who has a backache or a little dysmenorrhea, and a number of them have their uteri dilated and cureted. At Bryn Mawr and other colleges it keeps several doctors busy to do this work.

The history of this subject is exceedingly interesting. I cannot understand why in the early history of these cases gynecologists should have overlooked a trouble so fatal or disastrous, and that it should have been so overlooked in the offices of coroners in every great city. Up to the pioneer efforts of this Association the coroner's physicians of Philadelphia had failed to recognize extrauterine pregnancy. All of these cases the world over were recorded by coroner's physicians as instances of accidental hemorrhage. How they could have been so blind to macroscopic conditions I do not know. In short, I cannot understand why they should fail to see the little fetus we see so often washed out. Up to the time of Formad, ectopic pregnancy had never been recognized in Philadelphia by the coroner's physician. I asked Formad if, after doing postmortems every day, he did not find cases

of ectopic pregnancy, and he said "No." He found accidental hemorrhage. Shapley, a good and wise physician, was coroner's physician for eight years under Goddard, the coroner of Philadelphia. Frank Maury, and Henry Chapman, the physiologist at Jefferson Medical College, were likewise coroner's physicians for eight years. Formad followed Shapley, Henry Chapman, and Frank Maury. I knew these men well. All failed to record cases of extrauterine pregnancy. When I called Formad's attention to its frequency in our hands, and asked him why he failed to recognize it, he said he would investigate the matter. He did so, and in two years reported thirty-five cases. Then I questioned him closely as to the character and seat of the injury. We talk so much about tubal abortions. They are not tubal abortions. They are different from ordinary uterine abortions. They are not similar; the structure is entirely different. There is nothing of an expulsive nature about the tube, nothing you can compare with the uterine structures in uterine abortion. Mr. Tait criticised the New York profession very severely for calling these cases tubal abortions. Tubal pregnancy occurs in an occluded tube. There is something there that favors tubal conception, and occlusion commonly follows it. There is commonly leakage at the pavilion extremity. But that is not as common as some would have us believe. I find that all of the ruptures take place in the outer half of the tube. In the specimens presented by Dr. Peck, had the rupture taken place near the uterus each one of the patients would have been lost. This question, the precise seat of rupture, I asked Dr. Formad, and at first he could not answer it. Later, he found in all cases that rupture was near the uterus. I am in the habit of saying that ruptures near the uterus belong to the coroner, and ruptures in the outer half belong to the gynecologist. Note that carefully; you will find it is largely true. Alluding to the coroners' work of the country, I would like to know what is done in Boston, New York, and other places. The chances are that they are ashamed of their records.

With reference to the classical history of pelvic hematocele, we all know now that in dealing with these cases there is no such thing as classical pelvic hematocele, except it be due to ruptured tubal pregnancy, or to traumatism, the crochet needle, stabs, and thrusts. Some of these cases present peculiar symptoms, and I am satisfied a number of patients have been lost by curetment. Several suspected criminals have been put unjustifiably in the penitentiary for extrauterine pregnancy. In our city I am satisfied two criminal abortionists have been locked up on account of interference in two ectopic cases. These patients were cureted, and they found the chorionic villi, and in all probability the uterus was perforated. But the post-mortem examinations were conducted in a reckless and unscientific

way. They found the abdomen full of blood, and hence inferred they were criminal abortions with perforations, and the suspects were locked up. I doubt very much whether there is an operator in this room who has not removed an ectopic specimen after the curet has been used twice or thrice without relief, and with some damage.

Dr. Zinke has alluded to the history of some of the cases occurring in Cincinnati. At one time I was very familiar with the interesting cases that occurred there. One woman, while on a shopping tour, was seized with an acute pain at the counter. She immediately went to a doctor's office, but died before anything was done. Another woman in Cincinnati died in a railroad station. Accidents from ectopic pregnancy are very numerous indeed all over the country. The accident has been quite common among physicians throughout the country. Dr. McMurtry was called to see a physician's wife who had previously been seen by one of Mr. Tait's pupils. He had made an error in diagnosis. Dr. McMurtry diagnosed the case correctly, operated, removed the ectopic sac, and saved her life. This physician visited me in Philadelphia a few days later. I invited him to witness an operation I was to do on the wife of the prosecuting attorney of Pottsville, and in showing the specimen I alluded to some of the peculiarities or idiosyncrasies of ectopic pregnancy, mentioning among them the mental condition of patients. This attorney's wife had ridden a hundred and twenty-three miles without speaking to her husband, and it may have been because she was suffering acutely. She acted peculiarly. I then asked the Kentucky physician in regard to his wife's symptoms, and he told me that she had considerable mental depression. I simply allude to this as one of the interesting features in the history of these cases.

I am satisfied that Dr. Peck's specimen is one of ectopic pregnancy. There is nothing of a fibroid nature in the specimen.

It is really important that we should continue these discussions on so interesting a topic. Years ago we were not in the habit of saying much about it, and we lapsed into considerable indifference on the subject. But each has got to bear some of the burden of that silence himself. At one time in Philadelphia this work was largely in my hands; then I had more operations for ectopic pregnancy than I do at present.

The diagnosis is often doubtful. I have two patients in bed now, one upon whom I operated six years ago, and who left the hospital a little too early. She has been suffering since. A week ago she was put upon the operating-table, and upon re-operation an ectopic was found. It was a difficult operation. She is recovering.

Three days ago a patient came from Ashland to be operated upon for ectopic pregnancy. The physician did not make the diagnosis.

The patient came in with a history of bleeding, with delayed period, and with the usual history of sterility, and I at once supposed that it looked like a case of ectopic pregnancy, although the history was not typical. I made those remarks before operating, and in a few minutes there was no doubt about the true nature of the case. It was a clear case. As in appendicitis, I feel that the class of cases we see should never be lost; but early interference is of the greatest importance if we would save them all.

DR. MCMURTRY.—There is one point that Dr. Price has not touched upon, and I would like to have him occupy a few moments in discussing it before the discussion is closed. The Fellows of the Association will remember Mr. Tait, who developed and elucidated this subject very thoroughly, taught that in cases of ectopic gestation which go on to term, when the tube ruptures, it does so where the broad ligament comes together in closing the tube, and ruptures into the fold of the broad ligament, while the fetus does not survive rupture of the free surface of the broad ligament. A few years ago I heard Dr. Price say that in his large experience he had never seen a single case that ruptured in the way Mr. Tait describes, into the folds of the broad ligament. I would like to ask him if his later experience has changed his views on that point.

DR. PRICE.—I have never seen a case yet of hemorrhage into the leaflets of peritoneum forming the broad ligament that was not due to ruptured tubal pregnancy. All of these are cases of tubal pregnancy with the exception of those due to stabs, thrusts, and traumatisms. It is the least fortified point of the tube.

DR. WILLIS G. MACDONALD, of Albany, N. Y.—With relation to one of the specimens that had been exhibited and a very considerable number of other ones he had seen on different occasions, he was led to believe that these specimens demonstrated the fact that the products of an extrauterine or tubal conception were expelled into the abdomen without any solution of continuity in the wall of the Fallopian tube; that they were expelled absolutely by the process of dilation from the fimbriated extremity of the tube and dropped into the abdomen.

DR. GOLDSPOHN.—Inasmuch as Dr. Price has contradicted the point of the frequency of actual tubal abortions, meaning by that that the entire product of conception escapes from the abdominal end without rupture of the tube wall, I wish to say that I regard it as comparatively frequent, and it becomes necessary for me to give my reasons for believing so. In the first place, according to the findings of Sänger, of Leipzig, who contributed an epoch-making paper on this subject at the International Medical Congress at Rome, and declared that hematoceles are often due to the ectopic growth simply escaping from the abdominal dilated end of the tube; and from my own expe-

rience I can say that when I have operated for supposed ruptured tubal pregnancy, or when I had made no such diagnosis, I have found that the ectopic product had escaped from the abdominal end of the tube, the tube being correspondingly wide open, and without any laceration of its walls. I have seen that condition a great deal more frequently than I have seen a pregnant tube unruptured.

Dr. J. H. Carstens, of Detroit, Mich.—We do not diagnose these cases very often before rupture. We hardly ever see them until rupture has taken place, and then these patients require the skill and attention of specialists. Who must make the diagnosis? The general practitioner. He finds a woman going along six or eight weeks without menstruation. She begins to menstruate a little; she has a little pain; she goes on three or four days. He thinks there is perhaps retained placenta, and he curets the uterus. As the result of that curetment he pulls on the uterus, tears the adhesions, breaks up the adhesion of the placenta, brings on hemorrhage, and the patient gets very sick, and we are called. What is the pivotal point of this discussion? We want to emphasize the fact that the general practitioner ought to be able to diagnosticate these cases; he ought to be able to make a bimanual examination and to detect in one side or the other in these cases a well-marked tumor. If it is an acute case, it is undoubtedly an extrauterine pregnancy. If he wants to curet in a chronic case (probably it is a pustule), he will perhaps lacerate the structure, bring about sepsis, and cause death in many cases. The only case of extrauterine pregnancy I ever diagnosticated unruptured was one in which I was called to operate on for appendicitis. When I had opened the abdomen I found the extrauterine pregnancy, made another opening, and removed it.

Dr. Price.—We have overlooked a point in the discussion. Replying to the remarks of Dr. Goldspohn, in exceptionally few cases do we find the pavilion extremity of the tube free. We usually find this extremity firmly fixed to the pelvic wall, the sigmoid beneath or above it, posterior to the uterine surface, or anterior to the broad ligament. But with fixation the pavilion extremity is fortified, and just inside of the pavilion extremity rupture may take place, and in exceptionally few of these cases we have a pile of clots and debris, and careful enucleation is sometimes required. I have a good many water colors of clots protruding from the pavilion extremity with an enormous ampulla. I do not say that they do not in good numbers leak at the pavilion extremity, and the hemorrhage and discharge and tubal contents do not escape in some cases, but it is not very common. Rupture at a short distance within the tube is much more common. But most tubal pregnancies are adherent when we see them, after vicious, meddlesome tinkering, to which Dr. Carstens has alluded.

Dr. M. Rosenwasser, of Cleveland, Ohio.—I am one of those who have heretofore taken an active part in the discussion of the treatment of ruptured tubal pregnancy. I have been subjected to much adverse criticism, which I deem unwarranted and unjust. What I have said in my papers and discussions I have no reason to retract. I feel deeply indebted to our eminent Fellow, Dr. Price, for what I know about the treatment of extrauterine pregnancy. Although only a short time with him, I shall always cherish the pleasure and the honor of having been his pupil. I came home, inspired by his enthusiasm, prepared to follow his teaching. His teaching was epigrammatic: "Whenever you find an extrauterine, early or late, operate." Unfortunately, or fortunately, in the first two or three cases I encountered the patients were unwilling to submit to immediate operation. Thirteen years ago many practitioners themselves did not understand these cases. Patients often refused operation because their doctor declined to share the responsibility. Quite a number of cases were seen two or three weeks or longer after rupture, the physicians in attendance having failed to recognize them. When I saw these delayed cases there were some who were free from fever or other disquieting symptoms. In studying and carefully observing these patients, after having refused operation, I found that after lying in bed two or three or six weeks, or even three or four months, they gradually recovered and regained perfect health. Forced into this position of non-interference, and convinced of the complete recovery of a good proportion of these patients, I felt it incumbent upon me to study the natural course of the disease. I placed patients with similar histories and symptoms in the hospital at absolute rest and under close observation, to see what the outcome would be.

At the time of my last report, in 1897, I had had a total of thirty-five delayed cases that had been kept at absolute rest under vigilant supervision. Of this number, eighteen recovered without operation, and remained well. The remainder underwent operation, or were advised to that effect, according to the respective indications.

Finding that the facts observed did not sustain the mere assertion that recovery in these cases without operation was rare, I could not give unqualified support to the advice of Dr. Price to operate in every case whenever the diagnosis was made, be it early or late. Though I heartily indorse the rule in general, I must insist that there are exceptions deserving of unbiased consideration. I cannot sanction surgical interference in cases such as I have named unless the symptoms demand it. I do not see so many delayed cases now, for the reason that the general practitioner has become educated to recognize, or at least to suspect, tubal pregnancy early. If called early by the family physician, and I concur in the diagnosis, I operate without delay. If, on

the other hand, I see the case late, two, three, or more weeks after rupture, and the patient is doing well, I do not operate at once, but place her under close observation in the hospital, where she either gets well without operation or is operated on just as soon as the symptoms warrant such intervention.

DR. HAYD.—I do not feel that this discussion should close at this point, because I think the most dangerous part of it is the remarks of Dr. Rosenwasser. I do not care whether occasionally such a case gets well or not, it is most dangerous teaching to say, after rupture has taken place and two weeks of delay have occurred, that such a patient should not be operated on because the patient may bleed the next day.

DR. ROSENWASSER.—I said I would not operate unless there were indications warranting it.

DR. HAYD.—If the woman does not bleed there may be suppuration, and is there anything more loathsome than a broken-down extrauterine pregnancy? To my mind there is nothing in the whole domain of abdominal surgery that is worse than that kind of a case, and perhaps the most fatal that we undertake.

DR. PECK (in closing) said, in reply to Dr. Longyear, that in the light of his experience he would operate in every case. My patient was living six miles away from any physician. She had had a primary rupture. I made a careful examination, and produced such intense pain that I thought I had caused a secondary rupture. I thought it well to get the patient taken to the hospital, where I could watch her. She was in good condition when she arrived. I waited three days, and then operated. The condition found demonstrated the fact that it was wise to have done the operation, as the small intestine was glued over the opening of the ruptured tube; the intra-abdominal pregnancy had increased in size, and certainly would have loosened the tube from the intestine, and the patient, I thought, would have bled more. She recovered in three weeks after the operation, and left the hospital in good condition.

My experience has been limited to fourteen cases of extrauterine pregnancy, and in nine of these curetment had been done. I think if the attending physicians had seen the cases early enough the other five would have been cureted. I cannot speak too strongly against universal curetment in extrauterine pregnancy.

EARLY OPERATIONS IN APPENDICITIS, AND METHOD.

By JOSEPH PRICE, M.D.,
PHILADELPHIA.

It would be difficult to list the large number of papers and discussions I have made, from time to time, all over this country, urging an early surgical interference in appendicitis.

Many years ago I felt the importance of educating the working profession up to recognize the symptoms of a trouble commonly developed very rapidly, and which, in a few days, kills a large number of children and young people. Many of you have been interested in precisely the same missionary work, and many of your contributions have been classical.

While reading papers before county and State societies, and never losing an opportunity, in public or private, to press early surgical intervention, I found I had lowered the mortality in my own work, as well as in that of my surgical friends.

Some years ago I felt almost the last word had been said on the subject, that a uniform consensus of opinion had grown up throughout the working profession; but in the last two years' work I find that I am in error. The professors of surgery, in the more prominent schools and educational centers, cling to ancient therapeutics, hot and cold applications, and the same old procrastination that we hammered at so long.

While dealing with pus and gangrene, gangrene and pus, daily, one naturally seeks a solution for the appalling pathologic conditions that should never occur, except out of the reach of intelligent clinicians. The unfavorable conditions referred to are more common now than ever before in the history of this subject, and yet but few appendicitis operations are done early.

Calomel and salts, and the confidence the profession has in their use, delay many operations. Professional gossip and criticism prejudice the public.

Good family physicians are commonly asked by their patients: "Are not surgeons doing unnecessarily the operations for appendicitis?" and the answer is as commonly: "Yes; they can be cured by remedies."

The same practitioner places himself in an unfortunate position, and he wholly overlooks the fact that appendicitis may develop at any time in his patient. This has occurred twice recently in my own work. A good practitioner had told his patients that operations were not necessary. In both cases, those of two fine children, open treatment was necessary to save them.

It is high time that the working profession recognized the fact that the active surgeon has a conscience and uses it.

In the last three months I have operated on about one hundred cases of appendicitis, with a mortality that pleases me, and I am hard to please. Seventy-five per cent. have been managed by open treatment. I wish I knew how to save them by some other method. Nearly all of them have been explosive cases, and none of the operations was done the first or second day. In two ball-players (pitchers) the operations were done on the third day. They were perfectly comfortable and were pitching good balls seventy-two hours before the operations. In both cases I found gangrenous appendicitis, with perforations and general peritonitis. Both were recognized, and could have been done twenty-four hours earlier.

I am listed for "Early Operations in Appendicitis, and Method." A few lines or half a sheet of this paper would be quite sufficient to dispose of the subject as listed.

I am satisfied that there is but one treatment for appendicitis—early clean removal of the appendix. The diagnosis is easy, and should always be made. The symptoms are commonly well marked. The choice of method should not worry the operators. A pair of scissors, with needles and fine thread, is all that is necessary. Cut off the appendix smooth with the cecum and close the opening with fine silk. Most operators differ in their methods; but with the appendix out and the opening closed the results are about the same. Early in the development of acute appendicitis the inflammatory wall of the general surgeon does not exist, except in his timidity and fear of a peritoneal cavity. The adherent bowel and omentum on the inner side of the cecum form only a part of walling off so commonly referred to. The inflammatory products go freely up and down into the pelvis and to the kidney. Numerous pus pockets are commonly found as high up as the kidney. The pelvis is full

of filth, if you will only look for it. Occasionally you will hear of a general surgeon reopening his patient two or three days after the operation and finding the pelvis full of filth. Had he explored the pelvis primarily a toilet and drainage would have saved the patient. The general virulent peritonitis found "postmortem" should have been recognized at the time of operation, by freeing all adhesions and making a general as well as local toilet.

In a few cases I have eviscerated the patient, freed all bowel adhesions, and washed the loins and pelvis before replacing the bowel. In two cases I am satisfied the patients could not have been saved by any other method—two lovely girls, fifteen years old. I find but few surgeons who understand irrigation or drainage of the peritoneal cavity; and they are very much in the position of the fashionable practitioner who cures appendicitis by remedies and never loses a case, and who always refuses to witness operations. The surgeon who refuses or never goes to the trouble of seeing a successful operator clean the peritoneal cavity and drain it, continues to excuse his disastrous results by pleading that their conditions were hopeless.

The deaths in my community from appendicitis have been very numerous, many important citizens having been lost in the last two years. Intelligent lay people seem much more alarmed than the profession.

Some years ago, at the operating-table, while removing the little "assassin," I remarked before the students and visitors that it was lamentable that we could not remove the appendix while tying the umbilical cord at birth, and with the same degree of safety. A few days later a very prominent lady called at my office and wanted to know if it were true that I was urging the removal of the appendix when the cord was tied in the dear little babies. I replied that I had tied the cord in my own five dear little babies, but had not removed the appendix in a single one. Recently, at two prominent social functions, I was asked by prominent ladies why the appendix could not be removed at birth.

No one should ever die of appendicitis in an enlightened community. The diagnosis is easy and sure. No harm comes of an error in diagnosis; if the patient is not suffering from appendicitis, it is some other intrapelvic or peritoneal pathologic trouble requiring surgical attention. The removal is safe and easy.

Some sections of the country seem particularly favorable for the development of appendicitis.

Surgically we would not permit a dirty sinus like the appendix to exist at any other point of the body. This dirty little anatomic cesspool is more prone to gangrene and perforations in individuals fond of field sports favoring prolonged exertion in the erect posture. All sorts of employments in the erect position favor non-drainage and appendicitis. This fact is particularly so at summer resorts. Again, the change of diet has a causal relation. The large number of patients prompting this paper were away from home, taking their summer vacation and enjoying all sorts of out-door sports.

A few years ago I reported a series of seven patients, advanced in age (none under sixty-five); all bore the operation well and recovered.

This summer the operations have been done chiefly on children between the ages of eight and twenty. About 75 per cent. are boys—fine, athletic chaps—and about 25 per cent. girls. A large number of the latter were menstruating at the time of the operation, in some instances complicating the diagnosis. The disease has been quite common and fatal at summer resorts. A large number of operations were done at Atlantic City, and a few patients were shipped home for operations.

The history as given, the early symptoms (commonly well defined) —these should never be overlooked. It is really trying that there should be any delay in surgical intervention. Physicians commonly tell us they recognize the trouble at the first visit; and go on telling us that they usually succeed in relieving the symptoms. The interval operation, so commonly referred to, has done much to mislead the general practitioner and much to complicate an operation in which there should be no complications.

DISCUSSION.

Dr. John A. Lyons, of Chicago, Ill.—This paper, like all papers of the essayist on this subject, or, for that matter, upon all abdominal operative subjects, leaves little to be said. Personally, I agree with him that as soon as the diagnosis of appendicitis is made an operation should be performed and the offending organ removed. But, as he says in his paper, very few of us have the courage to operate immediately, and sometimes when we have that courage we cannot obtain the consent of the patient. Then, again, if we all had the excellent arrangements and equipment for taking hold of these patients that

Dr. Price has, we could afford to be more positive; we could, generally speaking, do much better and more prompt surgical work. Yet the day is coming, I believe, when we shall, to obtain the best results, operate just as soon as a positive diagnosis of appendicitis is made, whether it be in a hovel, in a country district, or in a well-equipped hospital. I have in former years been sceptical regarding immediate operation for this disease. I have allowed patients to go on and suffer four or five attacks, hoping to obtain permission to operate on them between attacks. But I am quite satisfied now this is because neither I nor the patients have had the courage of our convictions. I am now, however, fully convinced that while some of the patients apparently recover without an operation, a much larger percentage of lives will be saved by immediate operative interference by careful surgeons, irrespective of surroundings, providing all surgeons will properly equip themselves for such work, and this is surely the duty of both the physician and the surgeon to their patient.

Dr. Charles Greene Cumston, of Boston, Mass.—I have a few words to say regarding appendicitis. My connection with two institutions for sick children, in Boston, has given me some opportunity of studying the disease in rather young children. I have operated on very young children for this disease, my youngest patient being four years of age. I have done quite a number of operations for appendicitis on children between the ages of five and six. I have always operated on them the minute the diagnosis was made, and in each and every case—some fifteen in number—they have made uneventful recoveries. The diagnosis of appendicitis in the young is easy in most instances. I would like to relate very briefly a case that came under my observation a few months ago. It illustrates very forcibly a point or two in regard to the diagnosis.

The child was about seven years of age. I obtained the following history from the family physician: the child was out playing in the yard one afternoon. Subsequently it ate a hearty supper, and retired. In the morning the boy woke up with abdominal pain in the right side, with vomiting, rapid pulse, but not much temperature. This condition continued for twenty-four hours, at the end of which time I was asked to see the case. A diagnosis had already been made of appendicitis, and I concurred in it, and, as is my custom, I operated at once. I opened the abdomen, and as soon as I reached the peritoneal cavity an absolutely gangrenous appendix came up into the wound. It was adherent everywhere, walled off. I broke down the adhesions, and took out what I considered was the appendix, but it proved to be an undescended testicle. So far as I know, this point has not been mentioned in the differential diagnosis of appendicitis, but it is a good one to bear in mind.

Another thing in children that may lead one into error is a localized tubercular peritonitis. I have had experience in two instances where, until the abdomen was opened, the diagnosis was not made. The one that I desire to call your attention to was a child, six years old, who was taken with all the ordinary symptoms of appendicitis. The child was seen in the afternoon by the family physician, and I operated the next morning. I opened the abdomen and let out a lot of lemon-colored fluid. The appendix was bound down by tubercular adhesions to the ileum. Its end was gangrenous. Macroscopic examination on the operating-table showed that the right iliac fossa was walled off, studded with tubercles. The appendix, which I removed, was infiltrated with tubercles. The patient made an uneventful recovery from the simple operation of opening the tubercular focus.

There is another question which I think should occupy our serious consideration, and that is, Should a patient be removed to a hospital or not when the diagnosis of appendicitis is made? In my opinion, more patients are lost from transportation from their homes to hospitals than when the operations are done right on the spot, and I would take my chances any time in operating at the patient's house, no matter what the conditions may be.

I would like to ask Dr. Price, in closing, if he can tell me how many out of one hundred cases made a perfect recovery.

Dr. Lewis S. McMurtry, of Louisville, Ky.—There are three points for consideration: first, the diagnosis of appendicitis. I know of no one thing in which the general medical profession has so much advanced as in the diagnosis of appendicitis. The disease is so very common, and has been so thoroughly elucidated in recent treatises on the subject and in medical societies, that the knowledge of the general practitioner is very accurate and thorough, and you will find now all over the country, where there was formerly a great deal of confusion, that the diagnosis of appendicitis is usually very promptly made.

The second question that presents itself is when to operate. This question is one that has not yet been settled by the profession. There still are surgeons who advocate letting the patient alone, believing that there are a great many cases who will have but one attack and no more; that the attack is mild; that it is simply a catarrhal appendicitis, and will all clear up by resolution. There still are other practitioners, but these are very few, who insist upon telling an intelligent public that by medicinal means they can cure appendicitis and avoid an operation. They cite numerous instances of persons under their care who have had the disease that have been cured by medicinal measures, and have not required operation. Such information is the source of a great deal of harm. When the operation should be done is a matter of difference between competent surgeons. There are some

surgeons who advocate delay in cases of suppurative appendicitis. In those cases where the operation is likely to be complicated, where the inflammatory area is very extensive, where the condition of the patient is very critical and the symptoms are acute, they claim that by delay the area of infection is limited and closed off, and that by means of delay the surgeon will encounter a pathology which is more easy to manage than in the early stages of the same pathologic process. That is a point that must be considered. Some very competent surgeons advocate such delay. My whole experience in the treatment of appendicitis is a protest against delayed operations. In acute conditions the field of operation is usually accessible. The procedure is so simple, and the cases can be so easily managed, that the mortality should be small; and in a case of doubtful character, in my opinion, it is far safer for the patient to take the risk of a clean operation than to run the risk of delay, complications, additional attacks, and perforation, with its consequences. My experience more and more confirms me in the view that as soon as the diagnosis is made and confirmed the sooner the operation is done the better. There are instances in which the disease is just receding where the patient has had an acute attack, and here you are likely to have an opportunity to do an interval operation. In those cases, for the average operator, it is better to wait until the recession extends. But in the great majority of cases, where perforation has occurred and where inflammation is active, it is better to do the operation right away.

As to the third point touched upon by the essayist, Of what should the operation consist? There are many surgeons who say when there has been a limiting wall where an abscess has formed that the best thing to do is to open the abscess, let out its contents, and not separate the adhesions or break down the wall, but clean out the abscess cavity with as little interference as possible. There are a certain number of cases that get well under that treatment. Right here, it seems to me, we are trusting a great deal to chance, to time, and to uncertainty. These are the cases treated of by the essayist, where secondary operations are done to open up additional pockets of pus, where you are not sure that the opening you have made will suffice to drain the abscess that is there, and in all probability you will leave the stump of the appendix, which will give trouble in the future. I have made it a practice in my work, whenever it is possible to do a complete operation, to remove the appendix, not to leave it to chance and time to determine. I believe in separating the adhesions, removing the appendix, and doing a complete operation whenever the conditions will justify it. There are a number of cases to which the surgeon is called that are practically moribund. He is called to see cases where medicinal and expectant treatment have been followed until the

patients are in a dying condition. The capillary circulation is beginning to fail on account of septic infection, there is profuse sweating, a small, wiry pulse, and the patient is in no condition to operate upon. We should refuse to operate on such cases. In these extreme cases operations will accomplish very nearly nothing, and surgery is brought into disrepute.

As to the technique of the operation itself, Dr. Baldwin has described a very ingenious method of covering the appendix. A great many operators, and among them Richardson, always remove the appendix with the galvano or actual cautery, so as to destroy in the stump any material amount of infection. Others ligate the appendix, turn the stump inward, and cover it over. Others apply carbolic acid to the stump as a germicide. Others cut out the appendix, after tying the meso-appendix, and sew the opening over, just as if there were a hole in the gut. As to these various methods, I do not think it makes much difference, if any, as the patients fully recover after all these methods. A great improvement in the technique of the operation is in the open treatment. I am satisfied in the early operations for this disease we lost many cases by not leaving sufficient drainage. We did a complete operation to avoid ventral hernia. What is a post-operative ventral hernia in comparison with the saving of a life in a desperate case? When extensive pus areas exist I believe the incision should be open and every avenue thoroughly cleaned out, then gauze drainage used, and the opening left. I can recall numerous cases I have operated upon in the last year or so without putting in a suture at all, leaving the incision open with gauze hanging out, so as to establish free drainage.

One point upon which there has been a great deal of confusion in the minds of operators has been in regard to the numerous discussions about drainage and irrigation. You are all aware that one of our Fellows has, with commendable activity and intelligence, pursued the practice of dry surgery so as to avoid all water and irrigation in operations, claiming that by cleansing the peritoneum with dry gauze sponges and avoiding irrigation, we can in that way avoid the diffusion of septic material beyond the involved area. We have had this phase of the subject discussed very much in the last two years. The statement that drainage is a confession of imperfect work has done a great deal of harm in the profession. I have no cause to regret separating adhesions and irrigating the peritoneum thoroughly in these cases; it does not make any difference whether it be done with pure warm water or normal salt solution, properly prepared and hot enough to cleanse it thoroughly by irrigation, provided drainage is thoroughly made in these desperate cases. I still believe that only by this means we can make a thorough and complete toilet of the peritoneum.

Dr. James F. Baldwin, of Columbus, Ohio.—We learn by our mistakes, but I think that in relating our experience it is well to dwell a little on those mistakes. About six weeks ago a patient was brought into the hospital over which I preside, by an excellent practitioner, at the end of forty-eight hours from the inception of a first attack of appendicitis. The patient was a young man, in the prime of youth, and a fine-looking fellow. His physician telephoned, asking me to see him as soon as he came in, to determine whether an immediate operation were advisable. I found that his bowels had been thoroughly opened within a few hours, that the nurse's chart showed that temperature and pulse had promptly fallen after the catharsis, the abdominal tenderness had almost disappeared, and the patient reported himself as feeling in fine shape. I examined the abdomen throughout without any trouble or complaint of tenderness, and the patient seemed on the high road to recovery. The case did not seem to me to be one for operation, and I so advised his physician, suggesting that he watch the man, and if the tenderness persisted an interval operation should then be made. The head night-nurse of the hospital leaves on my desk every morning a report of all the cases in the hospital, giving pulse, temperature, and general condition. In looking over this report I saw that this patient was continuing to do well in every respect, and, as he was being visited daily by his own physician, I saw no reason to offer any suggestion. On the morning of the fifth day after his admission, however, before I was out of bed, his physician telephoned, asking me to see him, as he was doing badly. I at once repaired to the hospital, and found him dying. He was dead within two or three hours. I learned that he had, during the early morning hours, and without any assignable cause, vomited a little, and immediately felt that something had given way. This vomiting was at once followed by collapse and death. No autopsy was held in the case, but I have seen autopsies following similar deaths, and we all know what would have been found. This patient undoubtedly had an abscess in the region of the appendix full of vile pus and with cobweb adhesions; these giving way, the peritoneal cavity was flooded with the pus, and the patient died of septic shock. The probability is that had I seen this patient daily I would have detected the presence of this abscess and have advised intervention; but his attending physician, less experienced in these cases, was misled by the entire absence of symptoms.

When I am called to see a case of appendicitis I advise immediate operation, with the plain statement that while there is some danger from an operation, there is very much less danger, on the average, from an operation than from delay. If the case is one that seems to be of the fulminant variety, but not yet too far advanced, I tell the friends that with an operation the chances are ten to one in favor of

the patient, but that without an operation, while he may recover, the chances are ten to one against him. That is a mathematical way of putting it that seems to appeal to the ordinary lay mind, and is ordinarily effective. The patient himself, of course, is almost invariably ready for an operation, unless he has been lulled into a false security by opiates.

DR. A. GOLDSPOHN, of Chicago, Ill.—It would be interesting to know whether any of the Fellows have practised the method advocated by Dr. A. J. Ochsner, of Chicago, who has had an extensive experience in treating appendicitis. He advocates treating the acute cases, when brought in, not by operation directly, but by making attempts to arrest vermicular motion of the intestines. To do that, the stomach is emptied by lavage thoroughly, and nothing is given by the mouth, the patient being sustained by rectal enemata. I tried that for twenty-four hours in one case, but the patient grew worse so rapidly that I did not dare to try it any longer. I therefore operated under rather extreme conditions, but the patient made a good recovery.

DR. J. H. CARSTENS, of Detroit, Mich.—In a conversation I had with Dr. Ochsner the other day, at a meeting of the Mississippi Valley Medical Association, I told him that I had seen patients vomit and have diarrhea whose bowels and stomachs were absolutely empty. They kept on getting worse, and finally died. The doctrine that an empty stomach is a good remedy to prevent a patient with appendicitis from getting worse is so vicious and pernicious that it is doing a good deal of harm all over the country. Country practitioners are very likely to follow the teachings of Dr. Ochsner, and when you ask them why they treat their patients in such a manner they will say to you, "Why, Dr. Ochsner says that if I starve my patients and keep their bowels quiet, they will get well." And then these practitioners do not send their patients to the city to undergo interval operations. Patients are dying all over the country as the result of such teaching. Operate when you make the diagnosis—and the diagnosis is difficult in some cases. I do not agree with Dr. McMurtry when he tells us that in a case of appendicular abscess, which is walled in, the wall should be broken down and the appendix removed. If you have an appendicular abscess, and if the appendix is right there, remove it if you can. If you cannot do it easily, do not do it. A year ago Dr. Noble, of Atlanta, asked in regard to my experience, and I told him of eighteen cases of appendicular abscesses where I cleaned out the cavity with gauze and left them alone, and did not remove the appendix. Some of these patients have survived this operation for over twenty years, and have not had a recurrence. The very next case I had, and had treated in the same way, returned three months later with recurrence,

and that was the first patient I ever had to return after that operation, and then I removed the appendix.

DR. MCMURTRY.—Leaving out your exceptional cases, how can you tell whether there is only one abscess present or not, and you have reached that?

DR. CARSTENS.—When the patient is under the influence of chloroform you can feel around with your hand and tell whether there is more than one abscess present or not. It seems to me at least you can, quite easily.

DR. MCMURTRY.—Suppose you have another pocket shut off by adhesions, you empty one and leave the other?

DR. CARSTENS.—I have had such cases. I have had cases in which, in the course of three or four days, the second abscess became very large, and it easily breaks into the old original abscess, or you can open it without any trouble.

DR. MILES F. PORTER, of Fort Wayne, Ind.—I would like to ask Dr. Price whether he removes the appendix in all cases of suppurative appendicitis.

DR. PRICE.—Yes, in all cases in which I can find the appendix, and I make an earnest effort to find it.

DR. PORTER.—I maintain that any man who removes the appendix in all cases in the presence of pus has unnecessary deaths, and Dr. Price is the only man I know of who does it. Dr. Deaver was taken to task by me in Columbus. He advocated the removal of the appendix in all cases, and in his remarks one of the first things he did was to relate a case in which he did not do it. I believe, and it is my firm conviction, granting the unquestionable skill of Dr. Price, at whose feet I would like to sit for six months, that he loses cases by that practice that he might save by simply opening the abdomen and confining his attention to the appendicular abscess. Why do I think this? Because I have seen a number of cases of appendicitis in which the appendix had already sloughed off, and lay loose in the cavity, and came out with the rest of the débris and pus. In one case I saw there was no appendix there to be recognized as such. It was in the bottom of the pelvis, between the bladder and rectum, and could not be recognized as an appendix until after it was examined by the microscope. Why should we endanger a patient's life in looking for an appendix that will run out with the pus, or that has undergone coagulation necrosis and is not doing any harm? Let this diagram (illustrating) represent the pus cavity. You have within it a small appendix. It may take you half an hour to find and remove it, and after you have removed it you have ten times more germs in this infected cavity than were contained in the appendix, and you cannot remove them, because they are within the coats of the intestine, and the only way

you can remove them is to cut out the guts. You talk about removing a small appendix with comparatively few germs in it, and leaving millions of germs in the wall of the abscess cavity. This, in my humble judgment, is not good surgery, and I believe people are dying every day in different parts of the world by the practice of such surgery. It is true, the longer we operate and the more cases we see the fewer times will we leave the appendix. Nevertheless, I believe that some patients can be saved by leaving the appendix who would die if it were removed.

Dr. Edwin Ricketts, of Cincinnati, Ohio.—I am very glad that this subject has been brought before us for discussion in the manner that it has by Dr. Price. So far as the treatment of these cases is concerned, I fully agree with the essayist that, as soon as the diagnosis is made, it is better, taking these cases one with another, to do an early operation. The medicinal treatment gives a mortality of 25 per cent., while the surgical treatment means a death-rate of less than 3 per cent. With these statistics before us, I cannot understand how anyone would argue against early operation in cases of appendicitis. Half has not been said upon this subject. There are men in the profession who are advocating today the medicinal treatment of this disease, some of them believing that operations are not necessary.

So far as the technique is concerned, every case is a law unto itself, and any man who advocates the removal of the appendix under any and all circumstances makes a serious mistake. Again, anyone who says that under any and all circumstances he will not remove the appendix if suppuration has taken place, makes a serious mistake, and I do not think the essayist will say, in his closing remarks, that he removes all of these appendices. The laity must be educated by the family physician in regard to the importance of early operations. Out of a series of nearly one hundred cases of this disease, seen in private practice, and operated upon, my death-rate has been 10 per cent. In these cases I have shouldered the responsibility that belonged to others. Every one of those ten patients could have been saved had an early operation been resorted to.

Dr. C. C. Frederick, of Buffalo, N. Y.—I wish to bring before the Association a proposition in regard to operating for appendicitis in this way: about six weeks ago I was called to see a man who had been sick ten or eleven days with appendicitis. His temperature had been ranging from 100° to 101° or 102°, pulse ranging from 110 to 115. He had a temperature of 102° and a pulse of 118 when I saw him, with a well-defined mass over McBurney's point. I advised operation at his home in the country, which was seventy-five miles from Buffalo. I put him on the table in his dining-room, and operated on him; I went down and broke up the adhesions between the coils of

intestines, which were all adherent, and found a sloughing appendix with a localized abscess. I removed the appendix, and found another small pocket communicating by a little bit of hourglass neck with one above. I washed out his pelvis thoroughly, using gallons of water in the cavity, but the man died inside of forty-eight hours. It was said that I had killed him, and if I had let the patient alone and waited until the abscess got large enough, which would be walled off, and a week later incised the abdominal wall over that abscess, the patient would undoubtedly have recovered, as other patients similarly have done. The proposition is brought prominently before us, What shall we do with these cases, when seen late, say ten or fifteen days after the onset of the attack? Where we have a small localized abscess, and break up the adhesions, once in a while a patient will die. The question I want to ask is, Is it advisable, under these circumstances in the late cases, where we have well-defined adhesions, to wait until we have a well-defined abscess, or shall we go ahead and break up these adhesions and take out the appendix, and run the chance of the patient having septic peritonitis, followed by death?

Dr. Price (closing the discussion).—You all know that quite a number of physicians all over the country have had appendicitis. The president of my class at Williamsport died of appendicitis. One of the best physicians in Columbia, Tennessee, played billiards with his abdomen full of pus, and died from this disease. One of the best surgeons in Wilkesbarre, Pennsylvania, died from appendicitis. All over this country people are dying from this disease. Children have died from it, and the children of good surgeons have been saved by timely operations. I mean by this, complete, ideal, operative procedures. What Dr. Cumston has said regarding appendicitis is worthy of our careful consideration and study in connection with this subject. He has told us that he has saved twenty little babies by complete operative procedures. He removed the appendix in every instance. What he has said about the house-to-house operations is correct. There is no time to be lost. Last evening we had three fires in three prominent hotels in this city, and the hotels were saved by the fire department. And just so in cases of appendicitis. If we wish to save lives we must work like the fire department, and complete our work. We must go out in nine seconds, and go in in nine seconds, if we can. Delayed operations are dangerous. Those frightful conditions alluded to by Drs. Porter and Ricketts should never exist. There should be no delays. Senn, Keen, and other professors in some of the prominent medical colleges have done a great deal of harm by their teaching in regard to appendicitis.

With reference to the transportation of appendicitis patients to hospitals, I believe the mortality is increased. It is well known that

there are some surgeons who have well-equipped and finely-appointed hospitals, who are in the habit of refusing operations unless patients can be brought to them. They carry on communication, either by wire, by telephone, or by letter, in regard to patients, and the delay thus caused gives Deaver, myself and others an additional mortality from operations for this disease. My brother is rather surgeon-in-extraordinary to our section of Jersey for appendicitis. He has the privilege of operating on many of his patients in my own hospital, but he goes to Jersey every day or so and operates for appendicitis. He is called either by 'phone or by wire. Out of a series of one hundred and fifty operations for appendicitis done in Jersey he has lost but two. Deaver says, bring the patients to Philadelphia, and I say the same thing. Of course, this necessitates considerable delay, and I am satisfied we lose patients occasionally by transporting them to hospitals. My mortality is higher than that of my brother, who urges that these operations be done at the homes of patients where the attacks occur. He does a complete operation. Speaking of complete operations I am reminded of a conversation I had with that grand past master of surgery, Dr. Hunter McGuire, who once said to me: "I have just lost a patient from appendicitis. I very foolishly left a little piece of infected omentum after operation, which killed my patient." The thorough and complete removal of the appendix should always be done whenever it is possible to do so. No band of infected omentum should be left. If Dr. Porter opened a patient's abdomen and found a leakage of pus from suppurating tubes and ovaries, or double pus tubes, double ovarian abscess, with leakage, omentum and bowel adherent, if he had five abscesses to deal with, he surely would not drain four of them and leave the fifth. It is well known that we enucleate bilateral suppurative forms of disease, and our patients recover. Unless the diseased area is thoroughly removed there is no telling where the pathological process will extend. An English surgeon reports two or three cases in either the *British Medical Journal* or the *Lancet*, in which he found the appendix badly involved, with puriform accumulations about the pancreas. We frequently find a honey-combed condition of the appendix, with multiple pus pockets around it. In some cases, below the adhesions, at the iliopectineal line, the appendix tumbles over into the pelvis, and in just such cases we fail to find it because it is in the pelvis. In shelling out the appendix in this class of cases, and closing the bowel, if you will separate the two fingers over the iliopectineal line, muddy fluid will well up. When the general surgeon reopens the abdomen in these cases, on the second or third day after his operation, he finds the pelvis full of fluid. I allude to this because the primary operations are incomplete. They are not ideal operative procedures.

As to the mortality and the question of removing the appendix, to which Dr. Porter and Dr. Ricketts have alluded, when I am confronted with a bad case of appendicitis I say to the mother, "Your son, or husband," as the case may be, "is dying. He may possibly die on the table, or if there is nothing done within the next twenty-four hours. I can give him the one remaining chance for his life by operating." I put the question, Shall I operate? And the reply invariably is, "Go ahead." I operate, incise his groin, wash out the peritoneal cavity, seek the appendix and remove it, and drain.

Of my last thirty cases of appendicitis, twenty nine were dealt with by the open treatment, without stitching the wound. They all recovered.

A few months ago Deaver 'phoned me, one Sunday morning, stating that two cases of appendicitis had come in, and as I had some visitors who had seen me operate for this disease on Saturday, I said to them, "Let us go and see Deaver operate." We walked into the ward with Deaver, and found a boy and a man with appendicitis. Both of them were vomiting, with "derby-hat" abdomens. It was quite a struggle for the physicians to get the patients into the hospital. As I looked at them in bed I considered them hopeless cases. Deaver put these patients on the operating-table, made a good free incision, went right down, sought the appendix, found it, removed it, made a thorough toilet in both cases, and left both incisions open. I rarely make an additional healthy wound in the loin in the presence of septic fluids, adding shock, and thereby serving as an additional source of infection. Deaver did it in both of those cases, and the patients got well. I do not question the propriety of removing the appendix in such cases, though I have in some instances pinched off the appendix as I would a piece of cheese, so friable was it that it would not hold the sutures, but in many cases have sutured the cecum and ileum.

DR. CARSTENS.—I would like to ask Dr. Price whether there are any cases in which he leaves the appendix.

DR. PRICE.—In dying patients my first aim is to save life. In my last one hundred operations for appendicitis I have probably left the appendix in two cases in dying patients. Deaver, on the other hand, did two complete operations for removal of the appendix on the dying patients just mentioned. To be perfectly honest about it, in those two cases of mine I believe I was in error, and ought to have taken their appendices out.

VAGINAL HYSTERECTOMY, WITH FOUR-AND-A-HALF MONTHS' PREGNANCY AND CLOSED CERVIX.

By J. H. CARSTENS, M.D.,
DETROIT.

On account of the great rarity of vaginal hysterectomy during *early* pregnancy, I thought the report of a case where pregnancy was of *four-and-a-half months'* duration, and, added to that, with a closed cervix, might be of interest. So far I have not been able to find such a case on record, and still there might be.

The case was that of a woman, Mrs. D., only twenty-six years old, mother of three children. She was afflicted with some inflammation and ulceration of the womb, as it had been called for some time. Finally, a diagnosis of cauliflower growth was made in some city in Kansas. The cervix was removed in February, 1900. She recovered promptly and improved very much in health, menstruation continued regularly, but during the summer, about six months later, she again had trouble. On examination, a recurrence was found. This was treated by cureting and strong cauterization, the latter being continuously and vigorously applied.

As far as I could find out from the woman, various kinds of caustics were used, latterly nitrate of silver, pure carbolic acid, and so on. These applications were continued until the last few days of October, when she menstruated. This ceased November 1st, and, as all discharge had stopped, she had no further local treatment and only a few simple vaginal injections. Menstruation did not recur December 1st, and by Christmas she felt some of the symptoms of pregnancy, and suspected she was pregnant. In January she increased in size, and consulted her physician, who was inclined to think she was pregnant. This continued until the end of February, and, after thorough examination, her physician found a nodule in the place where the cervix had been, evidently a recurrence of the cancer, but he could not detect any opening in the uterus. It was

absolutely closed, and he wrote to me for my opinion. I simply said that there was a possibility of pregnancy, but, after the operation and vigorous treatment she had undergone, the probabilities were that the cervix had closed and that she had retained menstrual blood, although I might change my mind when I saw her.

I was called out to Dansville, in this State, by the attending physicians, Drs. Lemon and Robbin. On examination I found a large uterus, just as you find at a four-and-a-half months' pregnancy, well-marked placental bruit, enlargement of the breast, etc.—in fact a clear case of pregnancy. The upper end of the vagina was absolutely closed by a cicatrix, as we find after vaginal hysterectomy. There were two nodules, the size of a hazelnut, and a bean, evidently a recurrence of the cancerous growth.

What was to be done?

Allowing the pregnancy to continue, the malignant growth would probably have closed up the vagina, and a Cesarean section would be required, and, at the same time, the cancer would have so far advanced that there would be little chance for permanent recovery.

Hence prompt operation seemed to me the right course to pursue; but how? If there had been an opening, I would have had the physicians insert a catheter and bring on a premature labor a week before, and then go out myself and remove the uterus. The question, to me, was whether I should open up the uterus, simply allowing an abortion to take place, or remove the whole mass at once. I decided to try the latter, but told the physicians and family that I might think best to stop any time during the operation.

Placing her under chloroform, I plunged a scissors into the spot where I thought the os ought to be. By separating them and stretching the opening further with my finger, I tore the sac. By still more enlarging the opening I had no further trouble in delivering the fetus. By pressing the womb the placenta was soon delivered, although the hemorrhage was frightful for a few minutes; but the uterus firmly contracted, and there was no further trouble.

In tearing the opening I fortunately ruptured into the cul-de-sac. This was a guide for me to work by, and, although the uterus was very large, I thought I could finish the operation and do a vaginal hysterectomy.

I carefully first separated the bladder from the uterus, cut a wide margin around the scar tissue, and was thus able to get at the broad ligaments, on which I placed two clamps, one on each; and having opened the anterior cul-de-sac, putting a corkscrew in the uterus, I

could pull it out without any trouble, because it was very soft and elastic and moulded itself to the canal. I placed two more clamps on the broad ligament from above on each side, and then removed the uterus, including tubes and ovaries, and put in the usual packing. The operation was finished in fifteen minutes from the very beginning, and the woman made a splendid recovery.

I heard from her only two weeks ago, and she had remained perfectly well so far.

I have had the literature of vaginal hysterectomy during pregnancy most carefully searched, and find the following cases where an abortion or premature labor was *first* induced and then the uterus removed within a few days.

Olshausen records the following cases:

1. Carcinoma of the cervix uteri in a four months' pregnant woman; vaginal hysterectomy fourteen days after artificial abortion. Recovery. (*Klin. Beitrage z. Gyn.*, 1884, p. 101.)

2. Aged twenty-six; carcinoma of the cervix uteri, five months' pregnancy; vaginal hysterectomy ten days after artificial abortion. Recovery. (*Zeitschr. für Geburts. u. Gyn.*, 1897, Bd. xxxvii., Heft 1, p. 1.)

3. Aged twenty-nine; carcinoma portio vaginalis; two to three months' pregnancy; vaginal hysterectomy ten days after artificial abortion. Recovery. (Ibid., p. 8.)

4. Aged forty-four; carcinoma portio vaginalis; five months' pregnancy; vaginal hysterectomy eight days after artificial abortion. Recovery. (Ibid., p. 8.)

Bouilly reports a case of carcinoma portio vaginalis; seven months' pregnancy; vaginal hysterectomy twenty-four days after artificial abortion. Recovery. (*Gaz. des. Hôpitaux*, 1886, No. 46.)

Berthod reports "cancer of the uterus with six months' pregnancy and shoulder presentation." This he turned into a breech, and spontaneous delivery followed; twenty-four hours later, vaginal hysterectomy. Death. (*Gaz. méd. de Paris*, 1886.)

A. F. Jones removed the uterus from a woman in the fourth month of pregnancy for adenocarcinoma. Recovery. Abortion had taken place three weeks previously. (*Omaha Clinic*, April, 1891.)

Skutsch reports a carcinoma of portio vaginalis in patient aged twenty-nine; seven-months' pregnancy; vaginal hysterectomy performed four weeks after spontaneous abortion. Recovery. (Seegelken, "U. komplikat. d. Schwangerschaft mit Carcinoma d. Cervix," Diss., Jena, 1892, p. 6.)

Theilhaber reports a case of carcinoma of the uterus in patient aged thirty-six; seven months' pregnancy; vaginal hysterectomy twenty days after abortion. Recovery. (*Arch. f. Gyn.*, 1895–1896, Bd. xlvii., p. 56.)

Winter reports a case of carcinoma of portio vaginalis in patient aged thirty-four; two months' pregnancy; spontaneous abortion followed by vaginal hysterectomy sixteen days later. Recovery. (*Zeitschrift f. Geburts. u. Gyn.*, 1897, vol. xxxvii., p. 9.)

A case of carcinoma of the cervix uteri was reported at the Berlin University Gynecological Clinic, in a woman aged thirty-six; four months' pregnancy; vaginal hysterectomy performed six days after artificial abortion. (Kausemann's Diss., Berlin, 1897–1898.)

A total of eleven cases where vaginal hysterectomy was performed a few days or weeks after an abortion or premature delivery.

DURING PREGNANCY.

The following cases were operated on during pregnancy:

Sir Spencer Wells reports "excision of the pregnant uterus for cancer" in a woman aged thirty-seven. Good recovery. (*Brit. Med. Journ.*, 1881, vol. ii., p. 856.)

A. L. Galabin reports "excision of the gravid uterus for epithelioma of cervix," with death. (*Indipendente*, Torino, 1881.)

Prof. Billroth, of Vienna, reports a case of "gravid carcinomatous uterus extirpated by the vagina," in a woman aged thirty-seven; four months' pregnancy. Recovery. (*Medico-Chirurgical Transactions*, 1882, vol. lxv., p. 36.)

C. Theim, of Cattbus, reports a case of "cancer of the gravid uterus" in Mrs. E., aged forty-one; ten weeks' pregnancy; vaginal hysterectomy. Recovery. (*Frauenartz*, July, 1886.)

Landau reports a case of "gravid uterus" in Mrs. E., aged thirty-two; vaginal hysterectomy after five weeks' pregnancy. Recovery. (*Archiv. für Gyn.*, 1886–1887, Bd. xxix., Heft 3.)

J. Greig Smith, of Bristol, England, reports a case of successful removal per vaginam of a cancerous and pregnant uterus in a woman aged thirty-four. Rapid recovery. (*London Lancet*, 1887, vol. i., p. 14.)

Max Hofmeier performed a vaginal hysterectomy in a case of carcinoma of the cervix uteri during pregnancy, on February 12, 1887. Patient, aged thirty-six, recovered. (*Deutsche med. Wochenschrift*, Jahrgang, 1887.)

Brennecke-Sudenburg performed two successful vaginal hysterectomies during pregnancy, upon February 27, 1887, and November 28, 1888, at the second and fourth month of pregnancy, respectively. (E. Mohr, "Ueber Total Extirp. d. Car. Uterus grav. per Vaginam," Diss., Halle, 1889.)

Kaltenbach performed a vaginal hysterectomy January 7, 1889, in the fourth month of pregnancy. Recovery. (E. Mohr's Diss., Halle, 1889.)

E. Mohr performed three successful cases of vaginal hysterectomy during pregnancy, and reports them in his dissertation "Ueber Total Extirpation des Carcinom Uterus grav. per Vaginam." (Halle, 1889.)

Dr. Almira Smith, of Boston, reports following case: Mrs. C., aged thirty-nine; cancer of cervix uteri with coexisting pregnancy of three and one-half to four months; placenta previa; vaginal hysterectomy. Recovery. (*American Journal of Obstetrics*, 1890, vol. xxiii., p. 941.)

Münchmeyer reports case of vaginal hysterectomy of cancer of uterus in Mrs. W., aged thirty; the uterus was found to contain a fetus of one month. Recovery. (*Archiv. für Gyn.*, 1890–1891, Bd. xxxvi., p. 443.)

Dr. Wallace Taylor, of Osaka, Japan, reports a case of cancer of the cervix uteri with coexisting pregnancy in Mrs. I. O'Y., aged thirty-nine; vaginal hysterectomy. Recovery. (*Med. Record*, 1891, vol. xxxix., p. 259.)

Dr. D. Berry Hart, of Edinburgh, reports a case of vaginal hysterectomy for carcinoma cervicis in early pregnancy in a woman aged thirty-three. Recovery. (*Edinburgh Med. Journ.*, 1891–1892, vol xxxvii., p. 694.)

H. Jockel reports a case of cancer of the gravid uterus; vaginal hysterectomy last month of pregnancy. Death. ("Zur Behandl. des Carcinoma Uteri gravidi," Inaug. Diss., 1893, Heidelberg.)

Carstens: Patient, aged twenty-nine, had flowed more or less for months; operated June 7, 1892, at Harper Hospital, before many members of the American Medical Association; pregnancy of three and one-half months. Smooth recovery. (*Journ. Amer. Med. Assoc.*, 1893.)

Reusing, of Germany, gives the following three cases:

1. November 1, 1891; Eva D., aged thirty-two; carcinoma of the uterus; two months' pregnancy; vaginal hysterectomy. Recovery.

2. October 12, 1892; M. B., aged thirty-nine; carcinoma of the uterus; two months' pregnancy; vaginal hysterectomy. Recovery.

3. May 29, 1894; C. G., aged thirty-eight; carcinoma of the uterus; four months' pregnancy; vaginal hysterectomy. Recovery. (*Münchener med. Wochenschrift*, 1894, p. 846.)

Dr. Zinke reports total vaginal extirpation of five months' pregnant uterus for carcinoma of the cervix, in Mrs. X., aged thirty-nine; operation February 10, 1894. Recovery. (*American Journal of Obstetrics*, 1894, vol. xxix., p. 828.)

Dr. William S. Playfair reports a cancerous and gravid uterus removed per vaginam in a woman two months pregnant. Recovery. (*Obstet. Trans.*, vol. xxxvii., p. 198.)

J. S. Fedulow performed total vaginal hysterectomy in cancer of the gravid uterus; seven months' pregnancy. Recovery. (*Skurn. Akush. Schenck. bol.*, April, 1895.)

Van der Mey reports a case of cancer of gravid uterus; five months' pregnancy; total vaginal hysterectomy. Recovery. (*Frommel's Jahresbericht*, 1896.)

Dr. W. H. Baker reports a case of cancer of the cervix complicated with three months' pregnancy in a woman aged thirty-five; vaginal hysterectomy. Recovery. (*Boston Med. and Surg. Journ.*, p. 134, 1896.)

R. Chrobak operated June 24, 1897, in a case of cancer of the uterus during the last stages of pregnancy: Mrs. W. N., aged forty-one; living child artificially delivered; vaginal hysterectomy performed immediately afterward. Recovery. (*Centralbl. für Gyn.*, 1897, No. 37.)

Alterthum performed vaginal hysterectomy April 13, 1897, in a woman aged forty-three; carcinomatous uterus in the sixth month of pregnancy. Recovery. (*Centralbl. für Gyn.*, 1897, No. 27.)

Reckmann reports a case of vaginal hysterectomy performed by Prof. Pfannenstiel April 3, 1897: Mrs. M. B., aged thirty-six; six months' pregnancy. Recovery. (*Centralbl. für Gyn.*, 1897, No. 47.)

Mackenrodt reports a case of cancer of the pregnant uterus in a woman aged twenty-six; two months' pregnancy; vaginal hysterectomy. Recovery. Operated March 1, 1893. (*Zeitschrift für Geburts. u. Gyn.*, 1897, vol. xxxvii., p. 148.)

Dr. A. W. Lea reports a case of uterine fibroids in a woman aged twenty-nine; three months' pregnancy: vaginal hysterectomy. Recovery. (*The London Lancet*, 1899, vol. ii., p. 407.)

Carstens (unpublished case): Mrs. B., aged twenty-eight, patient of Dr. W. J. Wilson; had a bad family history. Her mother died of cancer at the age of twenty-nine. She herself had had several attacks of pelvic inflammation, also more or less discharge. The examination revealed pregnancy of two and one-half months, and a growth of the cervix, evidently a cancer. She was operated upon December 15, 1900. Died of sepsis on the sixth day.

Strauch reports a case of cancer of portio vaginalis; vaginal hysterectomy performed immediately after delivery. (*J. Akush. i. jensk. boliez.*, 1900, vol. xiv., p. 1456.)

A total of thirty-two cases by adding my third, above reported.

This shows that pregnancy is rare in cases of cancer of cervix, although many cases occur where no operation is performed, and hence are not placed on record.

This table of cases also shows that operations are very successful and indicated in all cases of *uterine cancer complicated by pregnancy.*

DISCUSSION.

Dr. Joseph Price, of Philadelphia, Pa.—The steps of the procedure carried out by Dr. Carstens in this case were simple and so thoroughly surgical, that we cannot help but be impressed with the fact that the result could not have been better than it was. He freed the uterus, after emptying its contents, reducing its dimensions, opening the vagina fore and aft, in delivering the uterus, and then resorted to thorough drainage.

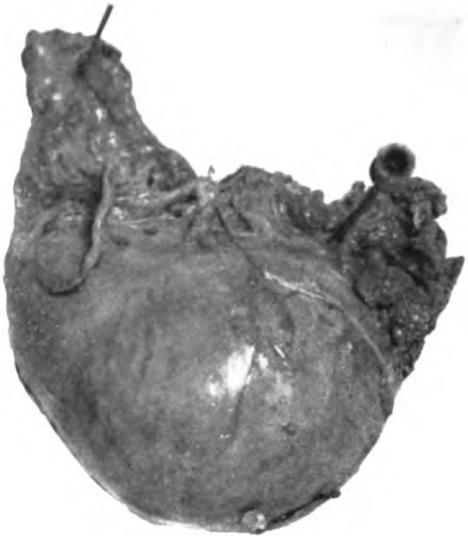
It took the medical profession twenty years to appreciate the value of drainage. Keith says: "After all, where would we be without drainage?" Coming from that grand old teacher and operator, it was always hard to understand why the profession did not appreciate what he meant, and look into the subject more carefully. It is hard to understand why this period of twenty years should have been lost to the professional world. We cannot estimate the number of deaths due to ignorance of drainage and of its value. Take, for instance, The Hopkins. Now, the surgeons there open both loins in appendicitis or peritonitis. Many who fought me, and said uncomplimentary, unkind, and unprofessional things about me for ten years, when discussing drainage, I have known recently to open both loins and leave the abdomen open, drain, and save patients that they lost by other methods of treatment. So those gentlemen cannot help but feel badly when they preface their remarks with an apology for not draining.

But as to the steps of this procedure, the clamp method has given the lowest mortality by the vaginal route for extirpation. A number of patients have been lost by attempting to complete these procedures by ligatures. The tying is imperfect, convalescence protracted, and the results never as good as by the clamp method. European surgeons have made an effort to claim the credit for clamp procedures, or the vaginal route; but we know that the vaginal operation was practised in America long before it was in Europe. For cancer of the uterus the operation was practised much more extensively and successfully in this country than it was in Belgium and France. It was surprising to some of us that other surgeons did not recognize how easy and simple vaginal hysterectomies are. When the Continental surgeons discovered how easy vaginal hysterectomies were they made a great deal of noise about it, but we had been doing these operations for some time.

In opening the vaginal vault, Dr. Carstens effected delivery by means of a corkscrew incision. We can only accomplish that where we have quite strong tissue. Where we have extensive malignancy, the corkscrew incision is not the best mode of practice. Again, as to the anterior mode of delivery, I question very much whether it is the best procedure. I have not found it so.

Dr. Carstens (closing the discussion).—I have nothing in particular to add, except to remark that the case is one of extreme rarity. Of course, I have had a few cases of vaginal hysterectomy with pregnancy, but this one, at four and a half months, is rather unusual, and I do not know whether there are any others on record or not.

FIG. 1.



Extrauterine pregnancy in unruptured tube.

FIG. 2.

Extrauterine pregnancy in unruptured tube. Tube laid open to show fetus.

TUBAL PREGNANCY:

Case Operated in the Eighth Week, Immediately Before the Occurrence of Rupture.

By MARCUS ROSENWASSER, M.D.,
CLEVELAND.

Cases of tubal pregnancy in which the diagnosis is made and the operation performed before rupture are becoming more frequent from year to year. I report the following case, not on account of its rarity, but because the specimen obtained is so well preserved and because of the excellent photographic illustrations.

Mrs. F. C. J., aged twenty-four years; married two years; never pregnant; menses regular, scant, last appearance November 29, 1900. Excepting an attack of peritonitis four years ago, she had enjoyed good health until last May, since which time she has had occasional colicky pains in the hypogastrium. During the past four months the pains have been more frequent; during the last five weeks they have grown worse, compelling her to remain in bed. In December and January she failed to menstruate. Besides the pain she suffered from daily nausea, vomiting, and painful defecation; there has been no fever. Morphin had been given for relief.

I saw her on February 8, 1901, at the request of her physician, Dr. C. J. Aldrich, who kindly furnished the history as stated. Locally there was a painful, fluctuating, cystic body posterior and to the right of the uterus, of the size of a small orange; the uterus was in the left side of the pelvis, soft and flabby, smaller in size than would correspond to a pregnancy of two months. There was no vaginal discharge. Though my diagnosis was tubal pregnancy, I could not exclude hydrosalpinx. I advised immediate operation. Abdominal section was performed on the following day.

When the peritoneum was reached in making the parietal incision, it appeared as blue as is usual in cases of ruptured tubal pregnancy. The omentum was injected; there was a slight amount of free blood

in the pelvis. The purple-colored cyst was loosely adherent to the right pelvis, but when relieved and brought into the incision it proved to be the left tube, of the size and shape of a medium Bartlett pear, tense, ready to burst; the abdominal end was apparently closed; judging from the appearance of the fimbriæ, the closure was very recent. A translucent cyst the size of a hickory-nut escaped, self-enucleated from the left ovary. The tube was removed unbroken. The gap in the ovary was closed with one stitch. The right ovary was healthy, but surrounded with very firm adhesions, which were not disturbed. The appendix vermiformis was injected and thickened at the distal end; it was removed. The abdominal incision was closed without flush or drainage. Recovery uneventful.

I am indebted to Drs. R. G. Schnee and Walter Lincoln for the preparation of the specimen and photographs.

Report on the Specimen, by Dr. Walter Lincoln.—The mass presented for examination resembles in size and general shape a fair-sized Bartlett pear. It measures 8 x 6 x 5 centimeters and 16 centimeters around its greatest convexity. It represents an unruptured Fallopian tube.

The *uterine end* of the tube for 3.5 centimeters is slightly thickened and larger than normal. The tube then becomes suddenly distended and greatly enlarged, and forms a mass with the approximate measurements given above.

At the *outer extremity* of the tube the fimbriated extremity is seen. This is very short. The fimbriæ are still separate from one another, and the abdominal ostium appears to be patent. It leads directly into the interior of the mass, and is there blocked by a layer of blood-clot presently to be spoken of.

Mesosalpinx is almost obliterated. It is thickened and gives attachment to numerous remnants of firm velamentous adhesions. A small, translucent cyst with thin walls is seen in the mesosalpinx. On the convexity of the tube, on one side, remnants of firm velamentous adhesions are found.

On opening up the tube, cutting from its free border perpendicularly down to the lower wall at the attachment of the mesosalpinx, an irregularly spherical cavity 3.25 centimeters in diameter is disclosed. This cavity contains a fetus 2.5 centimeters in length, attached to the wall of the cavity by the umbilical structures. There is absolutely no doubt that this is a true fetus, as the head, ears, eyes, and various members can be identified.

The inside of the fetal sac is movable and glistening, and slightly

irregular from the projection or bulging into it of numerous small bosses.

Considering the fetal sac as a cavity in the interior of the tube, its walls may be said to consist of:

1. An internal: a delicate, thin, translucent membrane, easily peeled away from the next external coat, and representing evidently the amnion.

2. An intermediate: a dark-brown layer made up of what is apparently, microscopically, blood-clot. This layer is of irregular thickness, varying from 3 centimeters in some places to almost nothing at one place where the whole cyst wall is translucent.

3. An external: a fibrous wall made up from the original tubal structures. This is about 1 millimeter in thickness. No break is found at any point in this coat, and the clot internal to it has had no communication with the exterior, except possibly at the site of the abdominal ostium of the tube. It is evident that the fetus and its surrounding blood-clot are still contained in and enveloped by the proper tubal structures.

Diagnosis, unruptured tubal pregnancy; hemorrhage into the tube.

DISCUSSION.

Dr. C. C. Frederick, of Buffalo, N. Y.—I do not know that there is much to be said in connection with the specimen that has been exhibited by Dr. Rosenwasser, except the statement I made yesterday that I had never seen in my own experience a case of unruptured tubal pregnancy. While it is simply a matter of coincidence, I do not wish to be understood as saying that tubal pregnancy cannot be diagnosed previous to rupture. I think it is possible, if the patients come to us early enough. Unquestionably, the pain which the patient has is caused by the distention of the tube in the process of development of the fetus, and the patient may have an ill-defined sense of soreness in the pelvis, which leads her to consult a physician for the trouble. Nowadays many women consult physicians for the slightest distress in the pelvic region, because they are wide-awake to the necessities of early treatment of intrapelvic disease. Unquestionably, a great many cases of tubal pregnancy have gone on to rupture and to fatal hemorrhage in the past that might have been saved if operation had been undertaken previous to the rupture.

I saw a very sad case, in Buffalo, about six weeks ago, of a prominent wealthy woman. She had a rupture about four o'clock one morning, not being aware that she was pregnant, having had no pain

or distress in her pelvis. She consulted her physician the day before for coryza, otherwise she was in good health. At about four o'clock in the morning following he was called to see her, at which time she had an agonizing pain in the abdomen, with some shock. He failed to recognize the true nature of the condition until late in the day. Still later in the day, before he consulted anybody, she had another rupture, and was pulseless. I operated on her, but she died a few hours afterward. Unfortunately, she did not have any pain which directed attention to the existence in her pelvis of this abnormal condition. Had she had pain she undoubtedly would have consulted her attending physician, and the diagnosis might have been made. I think the chances are better to operate at all times when there is a mass upon one side or other of the pelvis, when the patient is having pain, and there is a history, although very vague, of skipped menstruation, and consequently the possibility of extrauterine pregnancy existing. It is a fact that the vast majority of cases of unruptured tubal pregnancy are not rapidly and immediately fatal on account of the hemorrhage that follows. But we do know that in some instances the hemorrhage may be suddenly fatal, and, therefore, if a woman has a tender mass in her pelvis, and she has a history of skipped menstruation, it may be simply a hydrosalpinx, or a cyst of the ovary, but it had better be removed. All cases of tubal pregnancy should be operated on as soon as the diagnosis is made, rather than delay operation, with the possibility of hemorrhage occurring later. A section will not do any harm. A ruptured tubal pregnancy may constitute the focus for subsequent trouble which might jeopardize health and life, and it is much better for the woman to undergo a section and have it removed.

Dr. Edwin Ricketts, of Cincinnati, Ohio.—I was very much surprised at the remarks made by Dr. Rosenwasser in the discussion yesterday afternoon on this subject, in which he advocated non-interference in cases in which rupture had taken place. This morning he presents a specimen, with a diagnosis of unruptured tubal pregnancy, upon which he had operated, which helps to set him right with regard to the opinions he expressed yesterday. The operation he performed in this case of extrauterine pregnancy is one of the best procedures that one could advocate. I think it unfortunate if the teaching should go out from this Association that in any case of ruptured tubal pregnancy we should await the possibility of arrestation before treating the case surgically. This is the moment of surgery, waiting is not. Look at the statistics of extrauterine pregnancy, and take a series of one hundred cases, in which the earliest possible diagnoses have been made, and followed by early surgical intervention, and we will find that many more cases have recovered than from any delayed plan of treatment that might be instituted after rupture has taken place. The

condition is similar to a person with appendicitis. I dread to take the chances of delay in any of these cases if I can operate on them. I dread to take the chances of a ruptured tubal pregnancy, which is almost sure to be followed by more or less shock. In a number of instances I know patients have been lost by delay. As the last speaker has stated, some of these cases are diagnosticated before rupture, but they are very rare. When they are diagnosticated before rupture I think the operation suggested today and carried out by Dr. Rosenwasser in this case is the best procedure we can pursue.

DR. ROSENWASSER (closing the discussion).—I am very glad the subject of extrauterine pregnancy has come up again this morning, because it enables me to correct the misapprehension of some of the Fellows in reference to my views. I refer anyone who may be interested in the facts on which my opinions are based to read my papers and the discussions on them published in the TRANSACTIONS of this Association for 1893 and 1894, and in the *Journal of the American Medical Association* for November 27, 1897. In my discussion yesterday I stated plainly that I limit my treatment by rest to delayed cases in which the blood-clot is undergoing absorption and organization, so-called circumscribed hemorrhage, and in which the symptoms are quiescent. All other cases, including tubal pregnancy before rupture, are treated by operation. If you will take the time to read carefully what I have written I am sure you will indorse the position I have taken. I was prompted to write these papers after reading an article by our Fellow, Dr. Joseph Price, published in the *American Journal of Obstetrics* for 1892, in which he made the assertion that the cases of extrauterine pregnancy that recovered without operation were rare, and that the opinions of those who advocate the rest treatment were really based upon the vaporings of fancy. I had not previously published anything on this subject, but had on my records sixteen cases of what I have called circumscribed hemorrhage, of whom nine had recovered without operation and had remained well. I felt compelled to challenge the statement made by Dr. Price.

My first paper was read before this Association in 1893. This and the subsequent papers state the facts and arguments based thereon, and contain the detailed records of thirty-five cases, of whom eighteen recovered without operation. The discussions on these papers have in great measure been unsatisfactory to me, because they were not confined to the subject, ignored the facts presented, and were more or less tainted with prejudice.

In conclusion, permit me to call your attention to the fact that the treatment of circumscribed hemorrhage by rest and by non-interference has received the most emphatic approval of the lamented Lawson Tait, whose right to speak with authority on the subject no one will question.

INDICATIONS, TECHNIC, AND REMOTE RESULTS OF SALPINGOSTOMY AND OF RESECTION AND IGNIPUNCTURE OF OVARIES:

With Records of One Hundred and Four Cases.

By A. GOLDSPOHN, M.D.,
CHICAGO.

Degeneration of several or numerous Graafian follicles or of corpora lutea of an ovary into small cysts that are not neoplasms is of frequent occurrence. The "small cystic degeneration of ovaries" originated with Rokitansky. They are undoubtedly sometimes sequelæ of systemic infections, diseases encountered in earlier life, but most frequently they are the result of long-standing and persistent passive hyperemia of the ovary with or without a supplementary infection. All pathologic anatomists regard them as an abnormality; most of them, like Virchow, Klob, and Orth, as decidedly pathologic and proceeding from pathologic conditions. By a few, like Ziegler and Nagel, they are regarded as hypertrophic follicles that have not ruptured, because either the follicle membrane or the tunica albuginea of the ovary presented too great resistance, or because of pseudo-membranous deposits and adhesions upon the ovary. The abnormality, especially in its early stage in most instances, is that of edema or hydrops of the follicles, in which the ovules die sooner or later. And the principal predisposing, if not also exciting, cause of it, here as in other parts of the body, is persistent hyperemia of the parts, usually from an impeded venous circulation. This impediment may result from reduction of the lumina of the efferent vessels by the contraction of adjacent inflammatory connective-tissue infiltrations or deposits; but it more frequently results from displacements—notably descensus—of the ovaries, such as they most frequently undergo in connection with backward displacements of the

fundus uteri. As the weight of an ovary becomes increased by its edematous or cystic follicles, a *circulus vitiosus* becomes established against its welfare. The additional weight of the organ causes additional traction upon its supports, and accordingly impedes its venous circulation. This, in turn, increases the transudation into the follicles and the weight of the organ.

These cystic follicles in ovaries can frequently be palpated and recognized by the tenseness, tenderness, and globular contour of the ovary. They can sometimes be easily ruptured by compression. This occurs not infrequently during accurate examination. It does no harm, as the contents are innocent; but it also does no permanent good, as the cysts generally re-form. And this would probably also be the case after mere incisions or punctures in operating.

That these degenerate follicular and corpus-luteum cysts are not an innocent thing in the subjective health of women, but that they quite uniformly cause more or less marked and constant local or distant pains and other gynecologic symptoms, is well known to all competent and unbiased physicians of experience in these disorders who have carefully observed each of a larger number of gynecologic cases for a longer period of time, and have made frequent and thorough bimanual examinations in each case, both before and after effective surgical relief for the disorder was instituted. Ovaries in this condition cause much more pain, and cause it more uniformly, than do others that are the seat of actual cystic neoplasms whose size is greater than that of the inflammatory follicle cysts. As long as the neoplasms have not attained a size sufficient to encroach upon the adjacent organs decidedly, they are frequently, if not generally, devoid of pain, and are only incidentally discovered. The pain from the follicular cystic ovary, as we know, is not limited to the vicinity of the organ, but commonly extends upward in the direction of the kidney and to the intercostal nerves of the same side. Quite frequently it extends into the hip and down the sacrosciatic nerve; occasionally it involves the anterior crural. Backache, bearing-down sensations, leucorrhea, dysmenorrhea, and frequent micturition are common as signs of an associated pelvic hyperemia and a consequent endometritis, at least of a catarrhal nature.

But, in addition to these ovaries that have undergone multicystic degeneration, there is another class of ovaries that also come into the domain of possible conservative surgical treatment in women no

near the menopause. These are the seat of actual neoplasms, but they have not been completely disintegrated by them. The growths —usually cysts, and only those of the most benignant character, like parovarian cysts, dermoids, and simple non-proliferating and non-papillary cystomata—can often be removed in such a manner as to leave a remaining fragment or shell of ovarian substance *in situ* and sufficiently nourished. The details of two exemplary cases with neoplasms are published elsewhere.[23] In one the remnant of ovary was dissected up in the form of a flap, with its base upon the tumor pedicle, the latter then separately tied and cut off, and the ovary flap folded and stitched upon itself.

In another case, after the removal of tumors, a piece of fairly normal ovarian substance, about half the size of a normal ovary, but with its surfaces all denuded, remained attached only by a small vein. It was swung around and implanted upon a scarified spot upon the posterior surface of the body of the anteverted uterus by three fine catgut sutures. Menstruation recurred in these patients after five and eight weeks, respectively, and has appeared regularly during the fifteen months since the operations, while the subjective health of these patients is as good as if no pelvic disorder had ever existed.

The lamented Carl Schröder[1] was the first to practise and publish this conservative treatment of ovaries in 1884, when he reported five cases of bilateral disease of appendages in which he strove to retain ovulation and menstruation for the patients by retaining a macroscopically sound portion of one ovary. He drew severe limitations for the procedure: that the patient be not near the menopause nor already the mother of a large number of children; that the tissue to be preserved be safely healthy, and that there be no suspicion of malignancy or of papillomata on any portion of the internal generative organs.

August Martin[2] at that time, in discussion, was inclined to disapprove the treatment, but narrated a case in which he had punctured a large hydropic follicle in an only remaining ovary, and subsequently had observed two mature births in the case. But in 1889 he himself published 10 cases of actual resection of partially diseased ovaries; in 1891, 11 cases more; and in 1893, 6 additional cases. One of the 27 cases died; 24 cases of the remainder were available for prolonged observation afterward. Of these, 2 had recurrent dis-

ease and 8 became pregnant; and among 40 salpingotomies 1 became pregnant. Aside from these two men, up to this time (1893), Von Winckel,[3] Hofmeier,[4] Schatz,[5] Zweifel,[6] and P. Müller[7] approved the treatment, Müller suggesting instead to puncture the cysts and then use thermocautery; but Hegar,[8] Leopold,[9] and Fritsch[10] opposed it. In the same year Pozzi[11] published 12 cases of conservative surgery upon ovaries. Six of those consisted of resection and 6 of ignipuncture. Eleven of these patients were cured of their complaints, while in one hysterical case only a temporary improvement resulted. Routier on that occasion claimed, in opposition, that in all such cases in which he had left one ovary further operation had become necessary. In 1895, Donnett[12] again published Pozzi's total number of 23 cases, of which 19 were reasonably satisfactory and 3 required a second operation. Four of the entire number became pregnant. Pozzi practised deep ignipuncture for diffuse chronic ovaritis. He did not do salpingostomy, because he thought the epithelial lining in occluded tubes was too much destroyed to convey an ovule.

In America, W. M. Polk[13] was the first to undertake this laudable work and publish its results in 1891. In 6 cases in which the occluded abdominal end of a tube was simply opened without amputation of the end, 3 were found favorable on examination, 1 bad, and 2 unknown (died). In 4 cases the infundibulum was amputated; of these, 3 were good and 1 unknown. In 3 cases an exploratory incision was made in an ovary, and all were found good. In 6 cases several cysts were enucleated from an ovary. Of these, 4 were found good and 1 bad on examination, and 1 unknown.

In 1895, Friedrich Matthaei[14] (Berlin) published 6 cases of resection of one ovary in bilateral cystic neoplasms, 4 of which were dermoids. There was no recurrence of disease in any case; and 5 of them became pregnant and bore out to maturity in all but 1 case that was not yet mature. Burrage,[15] in 1896, reported a small number of cases of salpingostomy and resection of ovaries through a vaginal incision in the cul-de-sac, some of them in conjunction with the Alexander operation. Results are not mentioned until 1900, when he gives a good report and analysis of 85 cases that could be traced in which salpingostomy or resection of an ovary had been performed a year or more previously. In 41 of this number there had been pus somewhere in the adnexa. A subjective cure was

obtained in 60 cases out of 85. An anatomic cure was achieved in 33 out of 57 cases examined. Fifteen pregnancies followed in all, but none through an opened tube. In 5 cases that were unsuccessful a secondary operation was advised.

A. P. Dudley[16] reported 88 cases of such conservative treatment in 1898. He observed 14 cases of pregnancy among them afterward, 8 of which matured, the remainder being immature or having aborted. He says: "In all the 88 cases I have never seen inflammation follow in the appendages that could be detected by careful bimanual touch, except in one case, which was from gonorrheal origin." But also: "I have not been able to trace them all in their after-history." He reports also two gonorrheal cases of bilateral pus tubes, in which he saved a part of an ovary, with good results, during an observation of less than a year.

C. Martin[17] (Birmingham) favors resection of ovaries in cases of follicle cysts, dermoids, and fibroids of the ovary, and has practised it in a few cases. Results not specified.

R. Gersuny[18] has resected ovaries for follicle cysts, and in one case each of dermoid and cystoma with satisfactory results. He regards it as applicable to these, but in case of tumor with surface papillomata and in papillary cystomata it should be carefully avoided.

A. Maximo[19] (Russian) has vivisected 40 rabbits and 2 guinea-pigs. He either exsected a wedge from an ovary or incised it, and killed the animals in periods of time varying from five hours to eighty days afterward, and examined the ovaries microscopically. He determined that not only the germinal epithelium did multiply mitotically and cover a defect on the surface, but that the other ovarian tissues possessed a regenerative capacity also.

In opposition to the favorable views and the encouraging experiences noted, the following are recorded: H. C. Coe[20] publishes 8 cases in which sickness continued or recurred and required a second operation; or the expected menses did not continue to come, and the premature menopause was not avoided, but simply delayed somewhat. He warns against resection. L. Fischer[21] (Vienna) reports removal of bilateral pus tubes by anterior vaginal section. A remnant of right ovary remained involuntarily. This caused trouble in five months afterward, and required a laparatomy in two years for removal of an ovarian cyst. Waldstein[22] reports 4 cases of bilateral

septic disease in which Schauta or his assistant, Schmit, performed vaginal hysterectomy, but a part of an ovary remained involuntarily. Cystic tumors developed from the remnants in all the cases, and two required removal subsequently. Schauta is of the opinion that saving one ovary, or a part of one, is a mistake (when the uterus is removed); that the ovary does not continue to functionate in most cases, but either atrophies or undergoes degeneration, and therefore does not greatly lessen or delay the nervous disorders of the premature menopause.

Inasmuch as there is still so much difference in the opinion and experience of good men as to the merits of this conservative treatment of these important female organs, notwithstanding that it is already favored by probably a majority of all creditable operators, it is very desirable, in view of the great importance of the subject, that as many cases as possible in which it has been applied be carefully noted and observed long enough and then reported. For we need not merely to achieve a general recognition of its merits, but also to understand more uniformly under what conditions it is applicable, what are the best approaches into the pelvis for its execution, what is the most auspicious choice between resection and cauterization by the thermocautery, and what the minimum aseptic and other requirements for its success.

To assist in this direction the following table is offered of 104 cases that could be followed and found out of a total number of 115. Of these, 9 were performed by anterior vaginal celiotomy, 36 by median abdominal section, and 59 through the dilated internal inguinal rings in conjunction with an Alexander operation. They are, therefore, arranged in three classes, according to the route chosen to get at and deal with the parts.

TABLE I.—RESECTION OF OVARIES *via* ANTERIOR VAGINAL CELIOTOMY.

Number, age, married? para?	Anatomic diagnosis at time of operation.	Nature and date of operations.	Nature of the convalescence.	Date of recent examination and the objective condition found: (*a*) of the ovary or tube in question; (*b*) other organs in the pelvis.	Married? pregnancy? since operation	Subjective condition, pelvic and general.
No. 1. 28 yrs. Laborer's wife, multipara.	Pathologic cervix lacerat'n, metritis; larcerated perineum; cystic and cirrhotic ovaries.	Curetment; Schröder cervix oper.; removal r. tube and ovary; resection (by cautery) l. ovary; perineorrhaphy. Nov. 21, 1897.	Normal.	Suffered from movable kidney, fibrosis uteri, and tender l. ovary for 1½ year, then became pregnant; natural birth of 12 lb. baby, Jan. 7, 1900; good pelvic and general health since then. May 27, 1900.	Strong baby of 17 mos.	Boast of good general health.
No. 2. 28 yrs. Clerk, unmarried, nulliparа.	Indurated cervix; polypoid tumor of post. lip; marked metritis; cystic descended ovaries.	Curetment; amputated cervix; resection of both ovaries; ovaries hard to reach. June 30, 1899.	Afebrile course; prim. union.	May 9, 1901. Metritis and ovaritis chronic duplex continue less severe.	Unmarried.	Constantly ailing a little, and sometimes disabled a day from her work.
No. 3. 30 yrs. Housewife, II-para, + abortion.	Pathologic cervix lacerated; endo- and metritis; r. ovary cirrhotic, l. ovary cystic; very nervous, anemic, and hysterical.	Curetment; Schröder cervix operation; removal r. ovary and tube; thermocautery l. ovary. Jan. 4, 1900.	Afebrile and speedy recovery.	May 4, 1901. Never pain from l. ovary; normal position and condition of pelvic organs.	Married.	Amenorrhea of three to four months; intervals helped by ovarian substance; is now in good general health.
No. 4. 32 yrs. Dressmaker, married, multipara.	Fibrosis uteri; endometritis gonorrheal; pathol. cervix lacerat.; lacerat. perineum; hemorrhoids; neurotic and hysterical.	Curetment; Schröder cervix operation; removal r. ovary; thermocautery of l. ovary; intrapelvic and intravaginal perineorrhaphy; oper. for hemorrhoids. Jan. 18, 1900.	Suppuration of perineum; much nervousness for two weeks.	Aug. 10, 1901. Uterus large, hard, and very tender; l. ovary small, hard, tender, and source of sideache; total extirpation needed.	Married.	Is well nourished; very nervous; has pain pelvis, back, or sides daily; does light work constantly.
No. 5. 31 yrs. Farmer's wife (Germ.), VI-para.	Large subinvoluted uterus with endometritis; r. ovary small, c'rhotic, causing pain near r. kidney; l. ovary cystic; lacerated perineum.	Curetment; r. ovary and tube removed; l. ovary resected with cautery; intrapelvic infravaginal perineorrhaphy. May 14, 1900.	Afebrile course; prim. union.	July 25, 1901. L. ovary small, insensitive uterus, nearly normal after several tr. iodine applications with intra-uterine syringe aplicator.	Married.	Much improved in weight, and works all the time, but has some dyspepsia and occasion'l r. side pain.
No. 6. 35 yrs. Peddler's wife, multipara.	Large chron. metritic uterus; Pathol. cervix lacer.; large descended ovaries.	Curetment; Schröder cervix oper.; r. tube and ovary removed; l. ovary resected. June 20, 1900.	Very comfortable; afebrile course; prim. union.	Aug. 16, 1901. L. ovary not distinctly palpable and not tender nor source of pain; uterus reduced in size, but very hard and tender; has renal insufficiency.	Married.	Complains of lassitude, headache, diffuse pain in back and extremities; is improved by salicylates, potass. iodide and warm baths.
No. 7. Minister's wife, multipara, 43 yrs. married.	Metritis chronic; retrovers'n; adherent, inflamed and cystic; descended ovaries; marked melancholia.	Curetment; l. ovary and tube removed; r. ovary cauterized; vaginofixation of uterus. Aug. 2, 1900.	Smooth convalescence; prim. union.	July 20, 1901. Right ovary not distinctly felt, its region not tender; enlargement of uterus reduced after two intra-uterine tr. iodine applicat'ns; gain in flesh.	Married.	No pelvic symptoms; melancholia gone; had acute rheumatism since operation.

No. 8. 46 yrs. Hard working housewife, X-para + 1 abortion.	Chronic metritic uterus in second degree of prolapse with large vesicocele; cystic and cirrhotic ovaries.	Curetment left ovary and tube removed; r. ovary cauterized; extensive resection of ant. vag. wall and suturing of same; vaginofixation of uterus; perineorrhaphy. Oct. 4, 1900.	Prim. union, but some pruritus of pudendum.	Aug. 3, 1901. Uterus and ovary insensitive; vagina at first very narrow now capacious enough; position of all parts good; strong pelvic floor.	Married.	Coitus at first difficult and painful, now not so; no pelvic symptoms; marked gain in flesh and strength.
No. 9. 36 yrs. Laborer's wife, IV-para + 1 abortion.	Metritis from subinvolution; prolapsus uteri; vesicocele and rectocele; large and tender descended ovaries; lacer. perineum; anemic and poorly nourished.	Curetment; removal of both tubes and l. ovary; cauterization of r. ovary; vaginofixation of uterus and ant. and post. colporrhaphy. Nov. 6, 1900.	Aug. 15, 1901, reported in good pelvic and general health.	.....	Married.	

TABLE II.—SALPINGOSTOMY AND RESECTION OF OVARIES *via* MEDIAN VENTRAL CELIOTOMY.

Number, age, married? para?	Anatomic diagnosis at time of operation.	Nature and date of operations.	Nature of the convalescence.	Date of recent examination and the objective condition found: (*a*) of the ovary or tube in question; (*b*) other organs in the pelvis.	Married? pregnancy? since operation.	Subjective condition, pelvic and general.
No. 1. 29 yrs. Beer driver's wife, multipara.	Metritic uterus in adherent retroversion; adnexæ roofed over with pseudomembranes; ovaries cystic; tubes closed, and right side distended.	Curetment; cut out a vaginal cicatrix; removal r. ovary and tube; resected l. ovary; left salpingostomy; suspended l. ovary, shortening both round ligaments. Jan. 31, 1898.	Smooth recovery aside from a stitch-hole abscess.	Aug. 25, 1901. Ovary and uterus now devoid of sensitiveness, not enlarged; former not movable; good increase in weight and strength.	Married.	Presents entire absence of former angina pectoris, and good general health for three years, then was reinfected, but has recovered during trip of 4 months in Germany.
No. 2. 43 yrs. Sal'nkeeper's wife, multipara.	Endometritis; retroversion and descensus uteri; rectocele, vesicocele, multicystic ovaries; lacerated perineum.	Curetment; ant. and post. colporrhaphy and perineorrhaphy; removal r. ovary and tube; resection l. ovary; ventro-suspension of uterus. March 2, 1898.	Normal recovery aside from subcutaneous suppuration of abd. wound.	April 1, 1899. L. ovary region insensitive, but pain there occasionally; some bearing down sensations and little bulging of anterior vaginal wall; general nutrition good.	Married.	Patient quite corpulent, and has some discomforts due to this and to constipation.
No. 3. 35 yrs. Laborer's wife, multipara.	Chronic subinvolution; endometritis; retroversion extreme and adherent; l.ovary cirrhotic, r. ovary cystic; neurotic and very hysterical.	March 18, 1898. Curetment; removal l. ovary and tube; r. ovary resected; shortened both round ligaments.	Normal convalescence; primary union.	May 7, 1901. Examination by family physician indefinite.	.....	Has dysmenorrhea and diffuse pelvic pains more or less constantly; half disability for her housework.

Number, age, married? para?	Anatomic diagnosis at time of operation.	Nature and date of operations.	Nature of the convalescence.	Date of recent examination and the objective condition found: (*a*) of the ovary or tube in question; (*b*) other organs in the pelvis.	Married? pregnancy? since operation.	Subjective condition, pelvic and general.
No. 4. 25 yrs. Working housewife, married. multipara.	Endometritis; retroversion adherent; appendages severely matted down and not distinctly traceable.	March 26, 1898. Curetment; l. ovary and tube removed by exsection from uterus; r. salpingostomy and suspension of tube and ovary; shortening of both round ligaments.	Normal recovery and primary union.	Dec. 31, 1900 (Dr. W.). Normal condition and position of all pelvic organs.	.....	Pelvic and general health very good; working hard.
No. 5. 33 yrs. Merchant's wife, multipara.	Endo- and metritis; cystic ovaries (l. ovary causing pain as in l. pyelitis or kidney stone); lacerated perineum.	March 30, 1898. Curetment; Removal l. ovary and tube; explored l. kidney; resection and suspension r. ovary and tube; shortened round ligaments; I. I. perineorraphy.	Very smooth conval'ence; primary union.	May 8, 1901. R. ovary normal; never source of pain; uterus in good condition and position.	Married.	Has enjoyed very good health all the time since operation; the left side pain in kidney region never recurred.
No. 6. 35 yrs. Working housewife, multipara.	Diastasis of linea alba; general enteroptosis; movable r. kidney; retroverted metritic uterus; cystic ovaries; lacerated perineum.	April 9, 1898. Curetment; perineorrhaphy; resection of both ovaries and suspension of both; shortening both round ligaments; resection of linea alba.	Normal recovery; primary union.	May 25, 1901 (by letter). Never had pain in region of ovaries; sometimes near r. kidney; has good pelvic and general health, and works hard.	Married.	
No. 7. 22 yrs. Working housewife, multipara.	Subinvolution; endometritis; retroversion adherent; chronic oöphoritis duplex; lacerated perineum.	April 25, 1898. Curetment; perineorrhaphy; l. ovary removed; r. ovary resected and suspended; I. I. perineorrhaphy; ventro-suspension of uterus.	Primary union; normal recovery.	May 14, 1901. R. ovary adherent and hard, but not tender; uterus large, hard, and tender; has endometritis again.	Married.	Has pain in left side; occasionally (stumps) also menorrhagia.
No. 8. 25 yrs. Sal'nkeeper's wife, o-para.	Left pyosalpinx and large cystic ovary; r. tube occluded and convoluted; endometritis.	April 28, 1898. Curetment; l. tube and ovary removed, containing pus; r. salpingostomy and resection of ovary.	.....	May 29, 1901. R. ovary a little too hard, and little pain from it occasionally, perhaps due to associated endometritis.	Married.	Pains are not severe, and she is well nourished, and always hard at work.
No. 9. 27 yrs. Wife of a jockey, 1-para.	Chronic metritis; uterus retroverted adherent; septic l. tubo-ovarian conglomerate (gonorrheal); r. tube and cystic ovary walled over.	April 28, 1898. Curetment; removal of l. tube and ovary (free pus); resected and suspended r. ovary; shortened both round ligaments; drainage.	Normal and very comfortable recovery	April 22, 1901 (Dr. I.). R. ovary little large, no tenderness or other abnormality; very well nourished.	Married.	Has been in very good health, and working constantly.

No. 10. 34 yrs. Wife of mechanic, multipara.	Subacute metritic uterus in adherent retroversion; left ovarian cyst size of apple; adnexa adherent; post abortum.	May 18, 1898. Curetment; removal of l. ovarian cyst and pus tube; resected r. ovary; shortened both round ligaments.	Smooth convalescence; primary union.	Feb. 24, 1901. A relative says patient never had pain in sides or back of pelvis since operation.	Normal delivery at term, Sept. 1900, child living.	Became pregnant, and enjoyed good health during and after pregnancy, and died of pneumonia Jan., 1900.
No. 11. 21 yrs. Working housewife, multipara.	Left parovarian cyst and disorganized tube and ovary; r. adnexæ adherent, ovary cystic; endometritis.	June 29, 1898. Curetment; removal l. parovarian cyst and diseased ovary and tube; resection and suspension of r. ovary; shortening of r. round ligament.	Normal recovery; primary union.	May 11, 1901. Ovary a trifle large, otherwise normal and insensitive; uterus normal.	Married.	Has little pain on left side occasionally (stumps); general health very good.
No. 12. 37 yrs. Active housewife. multipara.	Metritic uterus in extreme retroversion and severely adherent in cul-de-sac; septic l. tube and ovary; pus.	July 16, 1898. Curetment; liberating uterus and adnexæ; removal l. tube and ovary; resection r. ovary; shortened both round ligaments.	Normal recovery; primary union.	Jan. 15, 1901. Ovary negative—never made symptoms; uterus norm. after several intrauterine tr. iodine applications.	Married.	Patient was ailing for about 18 months with ren. mobilis, metritis, and renal insufficiency.
No. 13. 26 yrs. Housewife, multipara.	Retroverted, metritic uterus; r. tubo-ovarian abscess; left ovary adherent and cystic; engorged appendix vermiformis; laceration of cervix.	July 19, 1898. Curetment; trachelorrhaphy; removal r. tube and ovary; resection l. ovary; appendectomy; explored r. kidney.	Normal recovery.	May 14, 1901. L. ovary normal, never caused pain; uterus too large and tender; patient much improved in flesh and strength.	Married.	Has some backache and pain with menses, but is never disabled for her duties.
No. 14. 33 yrs. Puella publica, o-para.	Adherent, retroverted, metritic uterus; r. pyosalpinx; l. ovary cirrhotic and tube closed (gonorrheal).	Aug. 26, 1898. Curetment; removal of r. pyosalpinx; resection l. ovary; left salpingostomy; shortened both round ligaments.	Temporary intestinal obstruction, otherwise normal recovery.	Jan. 10, 1901. Left ovary negative—never pain on left side; uterus hard and too tender; some tenderness about stump of r. lateral suspensory ligament of ovary removed.	.....	For a year after operation had a pain in region of right lateral stump of removed ovary; benefited by galvanism; good health now.
No. 15. 24 yrs. Widow, 1-para.	Left ovarian cystoma size of child's head; retroversion; endometritis; cystic r.ovary.	Sept. 5, 1898. Curetment removal l. tube and ovarian cyst; resected r. ovary; shortened both round ligaments.	Very smooth. comfortable recovery; prim. union.	May 15, 1901. Pelvic organs normal; never pain on right side.	Unmarried.	Very good health in every respect.
No. 16. 21 yrs. Factory operative, o-para.	Retroverted adher. catarrhal uterus; large descended, follicular cystic ovaries.	Dec. 17, 1898. Curetment; l. ovary end tube removed; r. ovary resected; shortened both round ligaments.	Passage of gas delayed, otherwise normal recovery.	Feb. 10, 1900. No pain at all on right side; uterus normal after two intrauterine applications of tr. iodine.	Unmarried.	Too profuse menses corrected by tr. iodine in uterus twice; good general health; working regularly.
No. 17. 43 yrs. Janitor's wife, multipara.	Metritis; l. pyosalpinx; cystic ovaries; retroversion adherent.	Dec. 1, 1898. Curetment; removal l. pus tube and ovary; resection r. ovary; shortened round ligaments.	Easy recovery, aside from slight phlebitis; prim. union after drain.	May 27, 1901. No pelvic symptoms, uterus and ovary negative, but has troublesome gallstones and chronic appendicitis.	Married.	Repeated attacks of gallstone colic and jaundice; appendix region very tender.

Number, age, married? para?	Anatomic diagnosis at time of operation.	Nature and date of operations.	Nature of the convalescence.	Date of recent examination and the objective condition found: (*a*) of the ovary or tube in question; (*b*) other organs in the pelvis.	Married? pregnancy? since operation.	Subjective condition, pelvic and general.
No. 18, 40 yrs. Nervous widow, multipara.	Extreme retroversio flexion adherent; metritis, cystic and cirrhotic ovaries, very nervous and anemic; lacerated perineum.	Feb. 27, 1899. Curetment; perineorrhaphy; removal l. ovary and tube; resection of r. ovary; shortening of round ligaments.	Very smooth course, and prim. union.	Aug. 1, 1901. Pelvic organs normal; never pain in right side; marked bronchial and intestinal disorders came one year after operation.	Unmarried.	In good general health now; extreme nervousness and anemia are much better.
No. 19. 33 yrs. Seamstress, virgin.	Endometritis catarrhal; left ovarian cystoma; cystic r. ovary.	April 27, 1899. Curetment; removal l. ovarian cyst; resection r. ovary.	Ideal convalescence and union.	May 3, 1901. Reports never had pain in right side nor pelvis at all.	Unmarried.	Enjoys very good health, and is very grateful; to be married soon.
No. 20. 35 yrs. Working housewife, multipara.	Umbilical hernia; diastasis of linea alba; enteroptosis; retroverted uterus; cystic left ovary.	June 22, 1899. Curetment; resection l. ovary; ventro-suspension of uterus; resection of linea alba.	Normal recovery; primary union	May 1, 1901. Pelvic organs normal; never pain in left side; a small weak spot in ventral scar; is very corpulent.	Married.	Former discomforts all gone, but feels a "weakness" in cicatrix.
No. 21. 26 yrs. Housewife, o-para.	Metritis; retroversion; cirrhotic and cystic ovaries much enlarged.	July 14. 1899. Curetment; resection and suspension of both ovaries; shortened round ligaments.	Normal recovery; prim. union.	May 6, 1901 (Dr. B.). Local and general health good now; had some pain occasionally at first.	Married.	
No. 22. 33 yrs. Housewife, multipara.	Endo- and metritis; cystic r. ovary; cirrhotic l. ovary.	July 18, 1899. Curetment; l. ovary and tube removed; r. ovary resected; shortened round ligaments; explored right kidney.	Recovery normal.	May 10, 1901 (Dr. B.). Absolutely free from pain seven months, when she disappeared.	.....	
No. 23. 30 yrs. Housewife, multipara.	Extreme retroversion adherent; metritis; double salpingitis; degenerate ovaries.	Nov. 17, 1899. Curetment; removal of both tubes and r. ovary; resected l. ovary size of an apple; shortened round ligaments.	Smooth recovery.	May 5. 1901 (Dr. B). Has had no pelvic symptoms; is in good general health.	.....	
No. 24. 40 yrs. Working housewife, multipara.	Metritis; retroversion adherent; enteroptosis; diastasis of linea alba; l. pyosalpinx; cystic r. ovary.	Nov. 21, 1899. Curetment; l. tube and ovary removed; r. tube removed; r. ovary alone resected, ventro-fixation of; resection of linea alba.	Good, aside from suppuration of some stitches.	May 7, 1901. Ovary at first tender, now normal condition; has ren. mobilis dextra; uterus still hard and tender.	Married.	Has gained much in weight and strength, but has pain in left side of chest at times.
No. 25. 31 yrs. Housewife, multipara.	Large retroverted uterus (metrorrhagia); r. hematosalpinx; cystic l. ovary and occluded tube.	March 1, 1900. Curetment; r. hematosalpinx and ovary removed; l. ovary resected; l. salpingostomy; shortened round ligaments.	Smooth convalescence.	Jan. 3, 1901. No pelvic symptoms; in good general health; poverty-stricken and working constantly.	Married.	

No. 26. 29 yrs. Housewife, o-para.	Endometritis; l. ovarian cystoma and septic tube and ovary; cystic r. ovary.	April 3, 1900. Curetment; removal of l. ovarian cystoma and pus tube and ovary (free pus); resection of right ovary.	Delayed bowel action; prim. union.	May 8, 1901; Pelvic organs in normal condition; no pelvic symptoms.	Married.	Enjoying very good health.
No. 27. 26 yrs. Bakery clerk, o-para.	Endometritis; septic l. tube and abscess of ovary; cystic right ovary; congested appendix vermiformis. (Had simple Alexander operation 6 years ago.)	April 3, 1900. Curetment; removal of l. tube and ovarian abscess (free pus; resection of r. ovary; inversion of appendix vermiformis.	Smooth convalescence.	May 6, 1901. Right ovary completely normal; never source of pain; uterus normal.	Unmarried.	Perfect local and general health; on her feet all day and every day.
No. 28. 33 yrs. Active housewife, III-para + 2 abortions.	Endometritis; l. ovarian cystoma partly intraligamentous; right adnexæ matted down, tube closed and ovary cystic, all walled over by by intestines.	June 16, 1900. Curetment; removal of l. ovarian cyst and disorganized adnexæ; removal of r. closed and dis. tube; resection and fixation of the ovarian remnant upon the posterior surface of uterus.	Exceedingly smooth recovery; prim. union.	Aug. 1, 1901. Uterus seemingly a little large, but otherwise normal; deep pressure upon its posterior surface over attached ovary is rather painful.	Married.	Menses returned after 7 weeks, and have been regular and normal since then; best of general health.
No. 29. 29 yrs. Housewife, single, o-para.	Endometritis catarrhal; bilateral ovarian cystomata; both tubes and l. ovary disorganized; r. ovary spread out upon the wall of ovarian cyst.	June 28, 1900. Curetment; removal l. cyst and adnexæ entire; removal r. cyst with saving of a flap of ovarian tissue; plastic coaptation of this flap.	Smooth recovery; prim. union.	Aug. 20, 1901. Ovary normal to touch bimanually; little pain in it first two months; uterus now normal after two intrauterine applications tr. iodine.	Unmarried.	Right kidney a little descended after a former operation for floating kidney; slight pains from this at times; general health good now.
No. 30. 26 yrs. Housewife, I-para,	Endometritis; r. ovarian abscess and pus tube; l. tube occluded and ovary cystic, all walled over by intestinal adhesions.	Sept. 6, 1900. Curetment; removal r. ovar. abscess and pus tube (free pus); l. salpingostomy; resection of l. ovary with cautery.	Delayed bowel passage, otherwise normal recovery; prim. union.	May 10, 1901. Position and condition of uterus and ovary normal; much gain in weight.	Married.	Extreme nervousness quite recovered from; best of local and general health.
No. 31. 35 yrs. Housewife, o-para.	Endo- and metritis; r. tubo-ovarian septic conglomerate (gonorrheal); l. tube septic, and l. ovary cystic.	Nov. 5, 1900. Curetment; removal r. tubo-ovarian abscess, ruptured; removal l. tube; resection l. ovary by cautery; r. lig. suspension of uterus.	Normal recovery; prim. union.	Aug. 27, 1901. Left ovary and uterus now in normal position and condition; after operation galvanism few times to ovary and two tr. iodine applications inside uterus.	Married.	Menses regular, at first excessive, now normal; in very good local and general health now after the little after-treatm'nt.
No. 32. 27 yrs. Bookkeeper, o-para, but abortion.	Endometritis, post abortion, double subacute pyosalpinx (pelvic peritonitis recently); degenerated ovaries.	Dec. 4, 1900. Curetment; removal both pus tubes and l. ovary; resection r. ovary by cautery; drainage.	Normal recovery and prim. union after drain.	May 20, 1901. Reported in good pelvic and general health.	Unmarried.	
No. 33. 27 yrs. Cook, I-para + 1 abortion, married.	Endometritis; retroversion adherent; l. tubo-ovarian septic, conglomerate walled over; cystic r. ovary.	Jan. 14, 1901. Curetment; removal l. septic tube and ovary; resection r. ovary by cautery; shortening of round ligaments.	Normal recovery; prim. union.	Aug. 14, 1901. Ovary normal; uterus inclining backward and tender; much gain in weight.	Married.	Has no pains; nourished well and working hard.

Number, age, married? para?	Anatomic diagnosis at time of operation.	Nature and date of operations.	Nature of the convalescence.	Date of recent examination and the objective condition found: (a) of the ovary or tube in question; (b) other organs in the pelvis.	Married? pregnancy? since operation.	Subjective condition, pelvic and general.
No. 34. 34 yrs. Working housewife, multipara.	Is pregnant 2 mos. (suspected ectopic); cirrhotic r. ovary and congested appendix vermiformis (had severe right side pain in pelvis).	Jan. 25, 1901. Exploratory ventral celiotomy; resection of r. ovary; appendectomy.	Normal recovery; prim. union.	Aug. 25, 1901. Right ovary negative; right side pain entirely absent after and since operation.	Married.	Patient aborted about 8 months after operation; is in good general health now.
No. 35. 19 yrs. Domestic, single, o-para.	Endometritis; post abortum; adherent retroversion; l. septic tube and ovary; r. ovary cystic.	Feb. 9, 1901. Curetment; removal l. septic tube and ovary (free pus); resection r. ovary; round lig. suspension of uterus.	Smooth recovery; prim. union.	Aug. 2, 1901. Ovary not distinctly felt; is not sensitive nor source of pain; uterus normal.	Unmarried?	Has no pains or complaints; is quite vigorous, and an all-day bakery clerk.
No. 36. 30 yrs. Housewife, o-para.	Endometritis; l. parovarian cyst very badly fixed; disorganized left adnexæ; r. ovary cystic; anemic and very nervous.	Feb. 14, 1901. Curetment; first vaginal celiotomy, but could not deal safely with cyst; then vent. celiotomy and removal l. cyst and adnexæ; resection r. ovary.	Very comfortable and normal recovery; prim. union.	Aug. 11, 1901. Right ovary and uterus both in normal position and condition; no tenderness anywhere.	Married.	Menses are painless, and otherwise normal; general health excellent.
No. 37. 26 yrs. Cook, single, o-para.	Adherent retroverted uterus; l. hydrosalpinx; deformed r. tube; large cystic r. ovary descended and adherent.	Feb. 26, 1900. Curetment; removal l. hydrosalpinx and ovary; resection r. ovary (¾); shortening both round ligaments by looping.	Normal recovery; prim. union.	Sept. 6, 1901. Examination: Uterus retroverted and very tender, right ovary less so, but pains all the time recently.	Unmarried (coitus?)	Sept. 6, 1901. Complains of pain in right ovary for several months causing partial disability.

Salpingostomy and Resection of the Ovaries by Bilateral Inguinal Celiotomy.

Number, age, occupation, married? para?	Anatomic diagnosis at the time of operation.	Nature and date of operations at the same time.	Nature of recovery or convalescence.	Date of recent examination or report, and the *objective* condition of the ovary or tube in question and of other pelvic organs.	Married? pregnancy?	Local and general *subjective* condition.
No. 1. 27 yrs. Housewife, 1-para.	Extreme retroversion movable; endometritis; right ovary cystic and prolapsed.	Aug. 28, 1897. Curetment; Alexander operation; resection of right ovary.	Comfortable and normal recovery; prim. union.	May 10, 1901. Is now 6 months pregnant and very comfortable; great gain in weight.	Pregn't.	

No. 2. 19 yrs. Stenographer o-para, single	Extreme retroversion congenital; catarrhal endometritis very large and cystic; left ovary badly descended.	Sept. 28, 1897. Curetment; Alexander operation; resection and suspension of left ovary.	Afebrile course; prim. union.	July 15, 1901. Never had pain or any discomfort in left side again.	Unmarried.	Former disabling l. side; pain and dyspepsia entirely absent since oper.; has slight dyspnea at times, but is robust and working hard.
No. 3. 27 yrs. Housewife, II-para.	Extreme retroversion movable; endometritis; large follicle cysts in left ovary and badly descended.	Sept. 29, 1897. Curetment; Alexander operation; resection and suspension of left ovary.	Subcutaneous suppuration of one side, otherwise normal course.	June 15, 1899. Condition and position of organs very good.	Abortion induced at 2 mos., had some treatm't after it.	Now in vigorous health, working all day in bakery.
No. 4. 22 yrs. Housewife, multipara.	Adherent retroversion; endometritis; cystic l. ovary; very nervous and hysterical.	Oct. 29, 1897. Curetment; Alexander operation; resection of left ovary.	Nervousness, but normal recovery.	July 13, 1899 (Dr. B.). Position and condition of organs good; is in good health, and doing all her housework.	Married.	
No. 5. 26 yrs. Bakery clerk, o-para, married.	Retroversion mobile; endometritis; both ovaries descended; left ovary cystic.	Nov. 1, 1897. Curetment; Alexander operation; resection of left ovary.	Normal recovery.	June 15, 1899. Condition of all organs good; but uterus imperfectly anteverted; "health very good," she says.	Married.	
No. 6. 24 yrs. Grocery clerk o-para, single	Retroversion and descensus uteri movable; right ovary cystic; very nervous and hysterical subject.	Dec. 1, 1897. Curetment; Alexander operation; resection of right ovary; pessary in for several months after operation.	Had intercurrent influenza; union primary.	July 15, 1901. All pelvic organs normal, but lacerated perineum since birth of child, Dec. 26, 1900; uterus in good position.	Married Nov. 1898, child b. Dec. 26, 1900, normally.	In good health since childbirth, aside from tubercular glands of neck.
No. 7. 42 yrs. Housewife. multipara.	Chronic metritis (subinvolution); retroversion movable; right ovary very large, cystic, extremely descended; very hysterical; has hysterical hemiplegia.	Jan. 31, 1898. Curetment; Alexander operation; resection and suspension of right ovary.	Normal recovery; prim. union.	Aug. 5, 1901. All pelvic organs in good condition and position; never had pain in right ovary; all hysterical symptoms ceased in one week after operation.	Married.	Menstruation normal, no pain, no hysteria; is working hard, doing all the work for her family.
No. 8. 25 yrs. Teamster's wife, multipara.	Endometritis; retroversion mobile; cystic left ovary.	Feb. 28, 1898. Curetment: Alexander operation; resection of left ovary; convalescence.	Normal convalescence.	Aug. 25, 1899. Has a child 2 mos. old; normal delivery; left ovary not distinctly felt in the corpulent patient, but is not sensitive; uterus in ideal anteversion.	Child 2 months old.	Patient claims to have not felt very well during first months of pregnancy, but very well in latter months and now; had no pain in round ligaments during pregnancy.
No. 9. 37 yrs. Sch'l teacher, o-para, single.	Chronic metritis; retrovers'n movable; cystic right ovary; cirrhotic left ovary; descended, enlarged right kidney; hemorrhoids; very nervous, anemic, and dyspeptic.	March 8, 1898. Curetment; Alexander operation; removal of right ovary and tube; resection of left ovary; operation for hemorrhoids by ligature.	Normal convalescence, aside from bleeding fr'm hemorrhoids; ligature slipping off.	May 15, 1901, reports: Never had pain in region of left ovary or left side; is in good health aside from occasional attacks of renal colic that are becoming less frequent.		

Number, age, occupation, married? para?	Anatomic diagnosis at the time of operation.	Nature and date of operations at the same time.	Nature of recovery or convalescence.	Date of recent examination or report, and the *objective* condition of the ovary or tube in question and of other pelvic organs.	Married? pregnancy?	Local and general *subjective* condition.
No. 10. 32 yrs. Mechanic's wife, multipara.	Metritis; retroversion movable; cystic right ovary; lacerated perineum; hemorrhoids.	April 6, 1898. Curetment; Alexander oper.; resection of r. ovary; intrapelvic, infravaginal perineorrhaphy; operation for hemorrhoids.	Afebrile; convales'ce; prim. union.	Sept. 18, 1900. Examined: normal condition and position of all pelvic organs now 14 months after birth of child at term; no pains during gestation in shortened ligaments.	Has child 14 mos. old, spontaneous & normal delivery.	Has no discomforts, and in good health. May 27, 1901, same vigorous health continues, needs a laxative occasionally.
No. 11. 24 yrs. School girl, o-para, single.	Metritis; uterus three inches deep; marked retroversion; extremely large and descended cystic ovaries; neurasthenia, hysteria, and severe dysuria.	April 26, 1898. Curetment; Alexander oper.; resection of both ovaries, and suspension of right ovary.	Very restless, otherwise normal convalescence.	May 24, 1901 (Dr. J.). Dysmenorrhea and nervousness continued in milder form and gradually subsided in two years.	Unmarried.	Is now in good health; has no pain of consequence referable to ovaries.
No. 12 34 yrs. Housewife, multipara.	Metritis; retroversion adherent; adherent degenerated adnexæ; extremely severe and almost constant headache.	May 17, 1898. Curetment; Alexander oper.; removal of left tube and ovary; resection and suspension of right ovary.	Subcutan'ous suppuration of one side, normal otherwise.	May 24, 1901 (Dr. J.). Never had pain in right ovarian region or right side; was in good health for 1½ years after oper., then headaches returned but subsided after another curetment; is now in very good health.	Married.	
No. 13. 37 yrs. Housewife. multipara,	Metritis; retroversion adherent; both ovaries cystic and adherent; left ovary extremely descended; attacks of dyspnea and angina pectoris.	May 18, 1898. Curetment; Alexander oper.; removal of left ovary and tube; resection and suspension of right ovary.	Convales'ce uneventful.	May 10, 1901. Never had pain in right ovarian region or r. side; ovary negative; was ailing more or less for 18 months after oper. from fibrosis uteri; renal insufficiency and chron. rheumatism.	Married.	Has fair health now, aside from discomforts that are relieved by sodii salicylate and potass. iodid.
No. 14. 29 yrs. Overseer in shirt factory, o-para, single.	Metritis; retroversion movable; cystic right ovary; recently convalescent from typhoid fever and left phlebitis.	May 24, 1898. Curetment; Alexander oper.; resection of right ovary; suspension of left ovary.	Smooth convalescence; prim. union.	Aug. 12, 1901. Never had pain in either ovarian region; organs now in normal condition and position; had several intra-uterine applications of tr. iodine to reduce swollen uterus during first year.	Single.	Has enjoyed excellent health after first year after operation, filling an arduous and important position perfectly regularly.
No. 15. 19 yrs. Domestic, o-para, single.	Endometritis; retroversion movable; cirrhotic ovaries; menorrhagia.	May 30, 1898. Curetment; Alexander oper.; removal of left ovary and tube; resection and suspension of right ovary.	Normal convalescence; prim. union.	March 15, 1901 (Dr. W.). Patient has been in good health since operation, and working regularly as a domestic.	Single.	

No. 16. 28 yrs. Drudging housewife, multipara,	Metritis; retroversion adherent; cystic prolapsed left ovary; lacerated cervix and perineum; emaciated, anemic, and neurasthenic.	July 2, 1898. Curetment; Schröder cervix operation; perineorrhaphy; Alexander oper.; left ovary resected and suspended.	Some temperature and insomnia; prim. union.	Sept. 20, 1900. Reported as being well and working constantly at washing during past year; was ailing in various ways previously while still living with an abusive drunkard.	Married, but single.	
No. 17. 24 yrs. Sch'l teacher, o-para, single.	Endometritis; retroversion; large cystic descended right ovary; right inguinal hernia and patulous femoral canal.	July 7, 1898. Curetment; Alexander oper.; resection of r. ovary; closure of wide femoral opening; cure of r. inguinal hernia in closing wound.	Normal convalescence and union.	July 18, 1900. Examination finds condition and position of all organs good.	Single.	**Has had no pain from right ovary; local and general health good.**
No. 18. 26 yrs. Sch'l teacher, o-para, single.	Catarrhal endometritis; retroversion movable; cystic ovaries, very tender; insomnia; neurasthenia.	July 15, 1898. Curetment; Alexander oper.; resection of both ovaries.	Normal convalescence aside from subcutan'ous suppuration of one side.	Nov. 15, 1900 (Dr. J.). Patient had pain from one ovary for 6 mos. after operation, then it subsided.	Married.	**Became married, and is in good general and local health now.**
No. 19. 22 yrs. Seamstress, o-para, single.	Catarrhal endometritis; extreme retroversion movable; large descended, tender and cystic ovaries; severely bleeding hemorrhoids; angina and extreme dyspepsia and vomiting.	Aug 17, 1898. Curetment; Alexander oper.; resection of both ovaries; operation for hemorrhoids.	Smooth recovery.	Aug. 27, 1901. Examination; condition and position of uterus and ovaries normal; great gain in strength and weight.	Single.	**Nausea and extreme dyspepsia ceased in few w'ks after operation; is working constantly as dressmaker; backache sometimes.**
No. 20. 40 yrs. Grocery clerk multipara, married.	Path. cervix laceration; metritis; retroversion adherent; adherent adnexæ; torn perineum	Aug. 24, 1898. Curetment; Schröder cervix operation; perineorrhaphy; Alexander oper.; resection of left ovary and salpingostomy.	Normal recovery.	May 27, 1901. Verbally; never had side pain since operation; is in ideal health, strong, and working constantly in grocery.	Married.	
No. 21. 17 yrs. School girl, o-para, single.	Extreme retroversion movable; catarrhal endometritis; cystic ovaries, right one as large as hen's egg; severe dysmenorrhea, dyspepsia, and nervousness.	Oct. 14. 1898. Curetment; Alexander oper.; resection of both ovaries.	Smooth recovery.	July 13, 1899. Anemia and neurasthenia continued for 6 mos. after, pain in one ovary for 4 mos. after oper., and subsided of itself; now in good health. (Dr. W.)	Single.	
No. 22 28 yrs. Housekeeper, o-para, single.	Catarrhal endometritis; retroversion marked; cystic ovaries, the left one prolapsed; dyspepsia and neuralgias very marked.	Nov. 21, 1898. Curetment; Alexander oper.; left tube and ovary removed; right ovary resected.	Suppuration of one side.	July 25, 1901 (letter). Had pain in remaining ovary for 3 mos.; local and general health good now.		
No. 23. 21 yrs. Seamstress, o-para, single.	Catarrhal endometritis; retroversion movable; r. cystic ovary; l. ovary cirrhotic.	Dec. 12, 1898. Curetment; Alexander oper.; left ovary removed; right ovary resected.	Smooth course, prim. union.	Aug. 1, 1901. Right ovary normal, no pain from it; has little cervical catarrh again; little pain in right ovary, subsided several times upon positive vaginal galvanism to it.	Single.	**Is in robust health, and works all day and every day at sewing.**

Number, age, occupation, married? para?	Anatomic diagnosis at the time of operation.	Nature and date of operations at the same time.	Nature of recovery or convalescence.	Date of recent examination or report, and the *objective* condition of the ovary or tube in question and of other pelvic organs.	Married? pregnancy?	Local and general *subjective* condition.
No. 24. 30 yrs. Sch'l teacher, o-para, single.	Metritis marked; retroversion movable; large multicystic ovaries descended and tender; insomnia and neurasthenia.	Jan. 2, 1899. Curetment; Alexander oper.; resection of both ovaries.	Extremely smooth course, prim. union; slept part of night in hospital.	Aug. 15, 1900, reported prolonged attack of acute rheumatism soon after going home, and took no medicine ("faith cure").	Single.	Some pain apparently in one or both ovaries; dysmenorrhea; claims to have insomnia, but is very well nourished.
No. 25. 31 yrs. Working housewife, multipara.	Metritis; retroversion movable; cirrhotic left ovary; cystic right ovary; lacerated perineum.	Jan. 9, 1899. Curetment; Alexander oper.; removal of left ovary and tube; resection of right ovary; perineorrhaphy.	Normal convalescence and primary union.	Mar. 31, 1901. Ovary and uterus in ideal position and condition after a natural and easy labor eight months ago.	Child 8 mos. old.	Is healthy, no discomforts aside from becoming fatigued easy when working and nursing child.
No. 26. 21 yrs. Clerk, o-para, single.	Endometritis; retroversion adherent; cystic right ovary; had left tube and ovary removed elsewhere two years ago by ventral section, and little improvement.	Jan. 9, 1899. Curetment; Alexander oper.; resection of right ovary.	Normal recovery	Aug. 22, 1900, examinat'n. Right ovary quite tender; small tender cystic body in broad ligament; vaginitis; eroded os and cervix; admits onanism.	Unmarried.	Complains of frequent pain in both sides and back and of dysmenorrhea.
No. 27. 31 yrs. Housewife, multipara.	Metritis; retroversion adherent; adherent degenerated adnexa; laceration of perineum and sphincter ani.	Jan. 10, 1898. Curetment; Alexander oper.; removal of left ovary; resection of r. ovary; perineorrhaphy.	Normal recovery. prim. union of all.	May 9, 1901. Right ovary normal, has never caused pain; uterus now normal condition after several tr. iodine applications for involution following abortion.	Abortion at 4 mos., 17 mos. after operation.	Health good until abortion, excessive bleeding then; health restored now after intra-uterine injection of tr. iodine.
No. 28. 37 yrs. Housewife, 1-para.	Chronic metritis; adherent retroversion and adnexæ; pathol. cervix laceration.	Jan. 30, 1899. Curetment; Alexander oper.; Schröder cervix oper.; liberation of organs; resection of left ovary.	Perfect normal convalescence and union.	Aug. 23, 1901. Normal left ovary; never had pain in right side at all.	Married.	Is in excellent health locally and generally.
No. 29. 21 yrs. School girl, o-para, single.	Catarrhal endometritis; retroversion movable; large cystic ovaries; cystitis and severe vesical tenesmus.	Feb. 11, 1899. Curetment; Alexander oper.; resection of both ovaries; cystoscopic inspection and cauterizing of bladder.	Normal and prim. union, only cystitis remained.	Aug. 19, 1900 (reports). No chief pain in either side at any time, but the cystitis lingered and never wholly subsided.	Single.	Is generally well except some irritability of bladder and a "weakness" and diffuse pain in pelvis before menstruation; to be married soon.
No. 30. 24 yrs. Housewife, 1-para.	Metritis (subinvolution); retroversion; descended cystic ovaries; lacerated perineum.	Feb. 20, 1899. Curetment; Alexander oper.; resection of both ovaries; perineorrhaphy.	Subcutan'ous suppuration of one wo'nd, norm. otherwise.	May 15, 1901. Normal condition of ovaries; never had side aches; uterus normal position and condition.	Married.	To reduce uterus receiv'd several tr. iodine intra-uterine injections; perfectly healthy now.

No. 31. 24 yrs. Clerk, o-para, single.	Catarrhal endometritis; retroversion movable; large cystic ovaries; pseudocystitis; vesical tenesmus chief symptom.	Mar. 16, 1899. Curetment; exploration of bladder with cystoscope found negative; Alexander oper.; resection of both ovaries.	Very smooth convales., prim. union.	May 14, 1901. Right ovary a little hard, but both ovaries otherwise normal, not tender, have never caused pain; uterus in good position and condition; is well nourished: occasional bladder tenesmus.	Married 3 weeks.	Had relief from bladder irritat'n first 6 mos. after oper., then it gradually recurred; 6 mos. ago was treated for cystitis elsewhere; some improvement of gen. condition after 3 weeks marriage.
No. 32. 35 yrs. Housewife, o-para, but repeated abortions.	Endometritis; retroversion; large cystic ovaries, right one like a hen's egg and descended.	April 13, 1899. Curetment; Alexander operation; right ovary and tube removed; left ovary resected.	Normal, aside from suppuration of one side.	May 24, 1901 (Dr. J.). Never had pain from right ovary; is in good pelvic and general health.	Married.	Everything perfect, but is disappointed in not becoming pregnant.
No. 33. 24 yrs. Laborer's wife. multipara.	Subinvolution and metritis subacute; left ovary and tube a septic conglomerate temperature, very recently after a labor; retroversion and lacerated perineum.	May 16, 1899. Curetment; Alexander oper.; removal left ovary and tube; resection right ovary; perineorrhaphy.	One side suppurated; had much rise of temperature; reduced by septic process	(Dr. B.). Patient lived 18 months after operation; never had pelvic symptoms, but pulmonary tuberculosis soon appeared and caused death.	Married.	
No. 34. 25 yrs. Housewife, 1-para.	Metritis; retroversion adherent; pathol. cervix laceration; cystic, very painful ovaries; lacerated perineum	May 22, 1899. Curetment; Schröder cervix operation; perineorrhaphy; Alexander operation; resection of both ovaries.	Normal recovery, prim. union.	July 3, 1901. Felt well for 15 mos. after operation, then pains in back and sides began again; find now return of retroversion, metritic, very tender uterus; tender and painful right ovary.	Married.	Aug. 8, 1901. Patient is now wholly well, with pessary, after several months of local treatm't with tr. iodine intrauterine and local galvanism to it and r. ovary.
No. 35. 29 yrs. Housewife, o-para.	Retroversio-flexion; catarrhal cervicitis; cystic right ovary; extreme dysmenorrhea and dysperunia.	May 29, 1899. Curetment; Alexander oper.; resection of right ovary.	Normal course, prim. union.	Aug. 10, 1901. Right ovary and uterus in perfect condition and position; perfect health for two years; recently some pain from left ovary.	Married.	Perfect local and general health now after positive vaginal galvanism to left ovary several times
No. 36. 20 yrs. Home housework, o-para, single.	Congenital retroversion; catarrhal cervicitis; large descended cystic ovaries; extreme headache.	June 22, 1899 Curetment; Alexander oper.; resection of both ovaries.	Normal course, prim. union.	May 2, 1901. Both ovaries normal; uterus, at first two intrauterine iodine applications with a syringe applicator for menorrhagia; now normal condition and position.	Single.	Good general and pelvic health for 8 months after operat., then rheumatic endocarditis began, and is now recovering from valv. heart lesions.
No. 37. 31 yrs. Housewife, multipara, and abortion.	Retroversion adherent with adherent adnexæ; endometritis, post abortion.	June 26, 1899. Curetment; Alexander oper.; liberating uterus and adnexæ; resection of left ovary.	Norm., aside from suppuration of one side.	March 15, 1901. Condition and position of pelvic organs good; only little tenderness of right ovary after a recent curetment for a septic induced abortion of five months.	Married.	Never had pain from r. ovary; complained of catarrh of bronchi and nasopharynx before pregnancy and abortion

Number, age, occupation, married? para?	Anatomic diagnosis at the time of operation.	Nature and date of operations at the same time.	Nature of recovery or convalescence.	Date of recent examination or report, and the *objective* condition of the ovary or tube in question and of other pelvic organs.	Married? pregnancy?	Local and general *subjective* condition.
No. 38. 28 yrs. Milliner, o-para, married.	Adherent retroversio-flexion with metritis; descended cystic ovaries; severe dysmenorrhea and constant intense backache.	July 15, 1899. Curetment; Alexander oper.; removal of left ovary and tube; resection of right ovary, and suspension.	Suppuration and much pain of one side; very restless.	May 16. 1901. Right ovary a trifle hard, but void of tenderness; had moderate pain in this region a few times briefly; uterus in normal position, but endometritis again.	Married.	Had many diffuse pains and discomforts that were relieved by sodii salicylate and potass. iodide, now in good health.
No. 39. 30 yrs. Housewife, multipara.	Subinvolution metritis; retroversion severely adherent; adherent adnexæ; pathol. cervix laceration; congenital retroversio-flexion.	Nov. 23, 1899. Curetment; Alexander oper.; Schröder cervix oper.; removal of left tube and ovary; resection of right ovary.	Normal convalescence, prim. union.	May 17, 1901. Right ovary and uterus in normal position and condition (had several seances of positive vag. galvanism for tenderness of ovary 6 mos. ago).	Married.	Now in perfect health, no pains or tenderness, menses normal; gained 35 pounds in weight since operation.
No. 40. 20 yrs. Home housework, o-para, single.	Catarrhal endometritis; right ovary cystic, size of hen's egg; left ovary cirrhotic, source of disabling pain.	Nov. 23, 1899. Curetment; Alexander oper.; removal of left ovary and tube; resection of right ovary.	Normal, and prim. union.	May 17, 1901 (exam. by Dr. B.). Condition and position of right ovary and uterus normal; never had pain in right side.	Single.	Little pain in left scar during menstruation, otherwise in good local and general health; is very grateful.
No. 41. 21 yrs. Housewife, o-para.	Extreme retroversion movable; endometritis catarrhal large cystic descended ovaries; extreme vaginismus and dysmenorrhea; renal insufficiency.	Dec. 30, 1899. Curetment; vulvar-plastic oper.; Alexander oper.; removal of left ovary; resection of r. ovary.	Suppuration of both w'unds, acute uremia, slow convalescence.	May 22, 1901. Right ovary has a cyst size of a small egg, is descended and painful; patient has gained greatly in weight, and is well nourished.	Married.	Complains of feebleness; back and right sideache, dysmenorrhea; will need operation for cystic ovary.
No. 42. 24 yrs. Seamstress, married, 1-para.	Retroversion and post-puerp. endometritis; large cystic ovaries dragging low down.	Jan. 18, 1900. Curetment; Alexander oper.; resection of both ovaries.	Normal convalescence, prim. union.	May 28, 1901. Ovaries in normal condition; uterus too hard and tender; leucorrhea and endometritis evidently; is well nourished.	Married to saloon keeper.	Had some diffuse pelvic soreness for 4 mos. after oper., relieved by baths; good health now, aside from endometritis.
No. 43. 33 yrs. Grocery-keeper, multipara, widow.	Metritis; retroversion; uterus and adnexa both very adherent; right hydrosalpinx; left cystic ovary; lacerated perineum.	Jan. 19, 1900. Curetment; Alexander oper.; liberation of organ; removal of right hydrosalpinx and ovary; resection of left ovary; perineorrhaphy.	Normal course, prim. union.	May 27, 1901 (verbal report). Has had no side pains; good health until 6 mos. ago, when menses became little profuse; little dyspepsia now.	Unmarried.	Patient conducts grocery herself, and works too hard and too long each day.
No. 44. 22 yrs. Mechanic's wife, o-para, sterile.	Retroversion; endometritis; ovaries large, multicystic; hysterical severe dysmenorrhea.	Feb. 1, 1900. Curetment; Alexander oper.; resection of both ovaries.	Normal course, prim. union.	May 9, 1901 (reports). No side or any other pains or dyspnea since operation; functions normal; good general health.	Married.	

No. 45. 24 yrs. Housewife, 1-para.	Movable retroversion; endometritis; cystic descended ovaries.	Feb. 27, 1900. Curetment; Alexander oper.; resection of both ovaries.	Normal convalescence, prim. union.	May 17, 1901. Both ovaries are in normal condition; uterus in good position.	Married.	Never has pains anywhere; no leucorrhea; menses little excessive, but painless.
No. 46. 35 yrs. Dressmaker, o-para, single.	Extreme retroversio-flexion; hemorrhagic endometritis; sclerocystic ovaries; left one very large and descended.	April 9, 1900. Curetment; Alexander oper.; removal of left ovary and tube; resection of right ovary.	Normal convalescence, prim. union.	May 16, 1901. Right ovary a trifle large and globular, but it is insensitive, and has never caused pain; uterus in normal position, but too large still, and bleeds too freely.	Single.	Fair health, but menses irregular now, and tendency to too free bleeding, although amenorrhea of several months followed strong intra-uterine applications.
No. 47. 24 yrs. Housewife, o-para.	Adherent retroversion; endometritis; cystic and cirrhotic ovaries.	April 12, 1900. Cure tment; Alexander oper.; removal of left tube and ovary; resection of right ovary.	Afebrile course, prim. union.	May 13, 1901. Condition and position of uterus and right ovary very good; never had pain from right ovary; general health excellent, weight increased from 93 to 143 pounds.	Married.	
No. 48. 30 yrs. Housewife, III-para.	Retroversion movable; hemorrhagic endometritis; large cystic ovaries; lacerated perineum.	June 4, 1900. Curetment; Alexander oper.; resection of both ovaries; I. I. perineorrhaphy.	Norm. convalescence, prim. union.	May 28, 1901. Ovaries are small, not tender, left one rather hard; uterus large, in normal position, but tender and seat of referred pains.	Married.	Endometrium obstinately tends to bleed excessively even after use of tr. iodine and also sal. chlor. zinc intra-uterine repeatedly.
No. 49. 24 yrs. Nurse, o-para, single.	Marked metritis; retroversion movable; left ovary large, cystic, right ovary in less degree; menorrhagia.	July 5, 1900. Curetment; Alexander oper.; resection of both ovaries, left one very slightly.	High temp. and sympts. of spinal meningitis.	May 29, 1901. Left ovary small, nodular, and quite tender; right ovary less hard and tender; pain in l. ovarian region frequently; uterus still metritic.	Single.	Works at hard nursing nearly all time, but also complains all the time mostly of left side and back.
No. 50. 40 yrs. Housewife, multipara.	Old very adherent retroversion; endometritis; adherent cystic ovaries; lacerated perineum.	Aug. 14, 1900. Curetment; Alexander oper.; liberation of organs; removal left tube and ovary; resection right ovary.	Suppuration of one side, norm. otherwise.	May 10, 1901. Right ovary normal, never caused pain; uterus in normal anteversion and good condition.	Married.	Enjoys very good local and general health.
No. 51. 29 yrs. Housewife, multipara.	Movable retroversion; hemorrhagic endometritis; right ovary cystic, very adherent; left ovary cirrhotic; lacerated perineum.	Sept. 24, 1900. Curetment; Alexander oper.; removal of left ovary and tube; resection of right ovary; perineorrhaphy.	Normal convalescence. prim. union.	May 16, 1901. Right ovary small, but in normal condition; uterus normal position and mobility, but is markedly metritic.	Married.	Patient complains of some pain in sides occasionally, more of backache; has a tapeworm, and is dyspeptic.
No. 52. 27 yrs. Domestic, o-para, single.	Retroversion; endometritis; excoriated os uteri; left small parovarian cyst, right ovary large and cystic.	Sept. 24, 1900. Curetment; Alexander oper.; removal of left parovarian cyst and ovary; resect. of r. ovary.	Normal course, prim. union.	Aug. 3, 1901. Right ovary normal (had two seances of positive vag. galvanism); uterus in normal position and condition; menses normal.	Single.	Patient had a gastro-intestinal fever recently, otherwise has been quite well and working.
No. 53. 32 yrs. Housewife, multipara.	Large friable subinvoluted uterus in retroversion; left ovary cirrhotic; right ovary large cysts follic. and corp. lut.	Oct. 9, 1900. Curetment; removal of left ovary and tube; resection of right ovary.	Late deep-seated secondary bleeding and suppuration.	May 11, 1901. Right ovary and uterus in normal condition and position; is well nourished, and does all her housework.	Married.	Complains of pain in left side at times from stump (?), also of numbness below the line of the scars.

Number, age, occupation, married? para?	Anatomic diagnosis at the time of operation.	Nature and date of operations at the same time.	Nature of recovery or convalescence.	Date of recent examination or report, and the *objective* condition of the ovary or tube in question and of other pelvic organs.	Married? pregnancy?	Local and general *subjective* condition.
No. 54. 20 yrs. Home housework, o-para, single.	Small retroverted catarrhal uterus; left ovary very large, cystic and descended.	Oct. 20, 1900. Curetment; Alexander oper.; resection of left ovary and cauterizing of right ovary.	Afebrile, normal, prim. union.	April 17, 1901. Reports being very well, entirely without pain until now; now some right side pain, thought by her to be appendicitis.	Married.	Patient's left side obstinate sciatica, was removed at once and permanently by the operation.
No. 55. 33 yrs. Dressmaker, o-para, single.	Large chronic metritic uterus in adherent retroversio-flexion; large cystic ovaries; neurasthenia and hysteria.	Nov. 10, 1900. Curetment; Alexander oper.; removal of left ovary and tube; resection of right ovary.	Normal convalescence, prim. union.	May 7, 1901 (exam. by Dr. W.). Has never had pain in right side, but has pain frequently on left side (from stumps?); is still more or less hysterical.	Single.	
No. 56. 37 yrs. Housewife, multipara.	Metritis; retroversion; left ovary cirrhotic; right ovary cystic; lacerated perineum; obstinate neuralgias.	Dec. 11, 1900. Curetment; Alexander oper.; removal of left ovary and tube; resection of right ovary; I. I. perineorrhaphy.	Normal convalescence. prim. union.	July 30, 1901. Right ovary normal, never caused pain; uterus in good position and condition (after tr. iodine intra-uterine several times.	Married.	At first too free menses, and anemia, neuralgia and some hysterical symptoms; all these now overcome by iron, tonics, and local treatment.
No. 57. 24 yrs. Housewife, II-para, + 2 abortions.	Metritis; retroversion; left tube and cirrhotic ovary adherent; right ovary large follicle cysts; lacerated perineum; valv. heart lesions.	Jan. 12, 1901. Curetment; Alexander oper.; left tube and ovary removed; right ovary resected; I. I. perineorrhaphy.	Much nervousness, prim. union.	Aug. 13, 1901. Right ovary in ideal condition; uterus a little tender; some leucorrhea.	Married.	Has gained much in health and strength; pains and hysteria nearly gone.
No. 58. 22 yrs. Housewife, o-para.	Metritis; retroversion adherent; descended and firmly adherent adnexæ; ventral hernia from former appendicitis operation.	Feb. 18, 1901. Curetment; Alexander oper.; liberation of all parts (bleeding); resection of both ovaries; excision of old appendectomy scar, and proper closure.	Afebrile course, prim. union.	Sept. 2, 1901. Reports improvement, but still some pain in left side and some dysmenorrhœa.		
No. 59. 30 yrs. Dressmaker, o-para. single.	Movable retroversion; metritis; a hard subserous fibroid size of small walnut on posterior surface of uterus not before discovered; left ovary with small follicle cysts; right ovary extremely hard and very thick tunic.	Feb. 18, 1901. Curetment Alexander oper.; enucleated small cysts from left ovary; resected two-thirds of right ovary.	Smooth convalescence, prim. union.	Aug. 1, 1901. Right ovary remnant hard and source of a little pain occasionally; uterus in normal position and condition; received one intra-uterine tr. iodine application for too free menses in first months after operation.	Single.	Patient's former extreme dyspepsia gone; has only slight pains at times, mostly due to too constant sitting and heavy sewing.

Choice of Operation.—Common to all these classes is the prospect and intention to save the uterus, and one or a part of one or both ovaries, with or without a connecting tube, and to put the parts so saved in the most favorable position and condition possible. Under this conservative policy I choose, for the vaginal route, the cases that present probably no pus in or about the adnexa and that have no retroversion to be cured, and notably elderly women with marked descensus uteri, who either are or may be made sterile and subjected to a thorough vaginofixation of the uterus in conjunction with thorough plastics upon the pelvic floor. This route is very good for extirpation of adnexa, but is very unfortunate for this conservative surgery upon them. The degenerate conditions in the adnexa for which they are resected or cauterized are largely due to their previous displacement—descensus. The effect is temporarily remedied by way of the vagina, but the cause cannot be removed by that route, and if, exceptionally, such displacement has not figured in their degeneration, then it is induced violently by the operator in drawing the organs down for treatment, and what they gain in condition they lose in position.

For the second class (median ventral section) I choose all cases of this kind in which there is probably pus or its equivalent present, or very severe fixations, no matter what the position of the organs. In order to resect ovaries and tubes properly, not to do too much violence to their most important lateral supports, and in order to suspend the reconstructed organs upon the lateral pelvic walls—their only normal location—and in order to get the required access, for this purpose, to the sides of the pelvic basin, the abdominal incision must be of good size and the exposure and manipulation of intestines is considerable. All this is avoided, in cases where pus or its equivalent and extreme fixations are probably absent, by choosing either the vaginal or the inguinal route. For the latter—the third class—I choose all patients of this kind who have a retroversion (not marked descensus) to be cured, and who have and ought to retain the capacity to bear children without the liability and probability of a return of their retroversion, etc., after a mature birth. This higher, more ideal requirement, which I have named the *double test of pregnancy*, has so far been proved to be achieved only by thorough shortening and anchoring of the round ligaments via their natural channels. And as, fortunately, the internal in-

guinal rings are very elastic and are located each exactly in front of the normal location of the ovary and ampulla of the tube, and very near to their lateral attachment or support, therefore these small and delicate organs, hanging from their fixation point directly back of this natural opening, can be swung forward without doing violence to their important supports, and can be drawn into or out of the temporarily dilated internal inguinal ring more easily and naturally than into any other opening of equal size in the abdomen or pelvis that can possibly be made; and their greater accessibility there gives a much better opportunity for the exercise of the most minute and exact dissection and suturing upon them, as well as for suspending them when needed.

Technic of Resection, etc.—Via the vagina, the ovaries are usually not accessible enough for exact resection. Ignipuncture with a Paquelin cautery is, therefore, the most advisable procedure there. Dührssen, who practises this very much, does nothing better. This is likewise to be preferred, irrespective of any route of operation, in cases where pus, etc., was extruded anywhere in the case, or where confined pus is probably present in the occluded tube of the same side, and in gonorrheal cases that are on the doubtful border of admissibility to this conservative treatment. This applies naturally mostly to the median ventral operations. In the safely aseptic ventral and nearly all the inguinal cases I prefer to do resection. Larger single surface cysts are dissected out from the ovary, and the wound is closed by very fine catgut, after its edges have been trimmed, if necessary. In case of deep-seated cysts, especially if multiple, a longitudinal incision is made on the free border of the ovary, extending about half-way through to its hilum. From the sides and bottom of this incision the various cystic follicles are dissected out. Then, if the edges of the incised wound have become membranous flaps devoid of ovarian stroma, they are trimmed down, and the remaining wound is closed with usually two tiers of continuous fine catgut sutures, one placed more deeply to control the bleeding and the other coaptating the edges.

In salpingostomy I have usually opened up the occluded end; if possible, milked out the tube contents, if any, to see that they were not purulent, then made a short longitudinal incision in the opening to make it larger, and then everted the edge of the mucous lining and sutured it to the outer serous and muscular layers with inter-

rupted sutures of fine catgut. When the ampulla was much enlarged or could not be opened up, I have amputated it, enlarged the opening of the tube stump, and sutured as stated above.

Requirements for Success. 1. Perfect sterility of all instruments, suture material, sponges, and towels that are made use of, and careful walling-off of the parts temporarily eviscerated and operated upon from contact with the skin or from an infected wound, and the attainment and maintenance of the nearest possible approach to sterility of the operator's hands and of those of his immediate assistants, preferably by the additional use of sterile rubber gloves by everyone who comes in contact with not merely the wound, but also with any of the objects used in it.

2. The use of fine and absorbable suture and ligature material only, and fine non-cutting needles—preferably curved milliner needles—in order that the amount of foreign matter introduced in the form of sutures and knots may be limited to the lowest possible amount.

3. The use of continuous sutures, in the manner above mentioned, requiring only two knots; and the employment of much careful judgment in placing enough, but no more, sutures than are actually needed, and in avoiding excessive tension in them.

In the first section, or class of the table, 9 cases of vaginal celiotomy are given, all of which were for results of inflammatory conditions—none for neoplasms. All except one were parous women and were married. In each case one ovary was removed and the other one treated with the thermocautery. For the single unmarried nullipara both ovaries were resected, and she constitutes one of the two decided failures in this class. Two of the others have frequent pain, partly from the remaining ovary, but can discharge their household duties. Only 5 of this class have no such complaints, and are in good health otherwise. Average period of observation of these 9 cases was seventeen and one-ninth months.

The table of the second class comprises 37 cases with a somewhat severer grade of disorder than was present in those of the other two classes, for 17 of them presented pus at the time of operation; 25 were parous women and 27 were married. The average period of observation was twenty-two and one-eighth months. In 4 cases the resection or restoration of one or both ovaries or of one tube was performed in conjunction with removal of bilateral ovarian cystic

neoplasms, and in 33 cases incidentally to the removal of parts of these organs that were destroyed by infection and inflammatory processes. Salpingostomy was done 6 times, resection of one ovary 29 times, and of both ovaries twice. In 9 of the 17 cases that presented pus the thermocautery was used. Suspension of the ovary and tube of one or both sides was done in 8 cases. A subjective cure, and, as far as examined, also an anatomic cure, was found to be present in 31 cases, or about 86.11 per cent., at the end of their several periods of observation. But in 3 cases this was not attained until after three, six, and twelve months, respectively, after operation. Five of the remaining cases, or about 13½ per cent., were able to work, but had frequent pain, for which the resected ovary was probably partly to blame. Six of the cases with normal ovaries were somewhat disturbed with other affections clearly not due to the resected organs. Only 1, or less than 3 per cent., of the 37 cases (17 of which presented pus at the operation) had an anatomic recurrence—cysts that demanded a second operation.

The third table presents the substantial data in each of 59 patients, not near the menopause, who had pronounced retroversions of the uterus that were complicated in many cases with adhesions, and in all of them with degenerate conditions of the adnexa that required resection of some parts, and in many instances also removal of other parts. Twenty-eight of these were parous women, and 35 were married. True neoplasms were not dealt with, aside from a few very small parovarian cysts easily taken out. In 17 cases both ovaries were resected. In 1, one was resected and the other cauterized. In 41 cases only one—frequently the only remaining ovary —was resected. Salpingostomy was only done once, and suspension of an ovary and tube nine times. The average period of observation in these 59 cases was twenty-two and four-fifty-ninths months. Forty-eight were examined by myself or by one of three other physicians. In the remaining 10 cases a complete and explicit statement in writing by the patient was accepted. In 52, or $88\frac{8}{59}$ per cent., of these cases the parts here treated of were entirely well. But in 7 cases this was not obtained until after three, four, six, six, six, six, and eight months, respectively, after operations; 5 cases, or about 9 per cent., were never disabled, but had frequent pains, for which a resected ovary was or might be blamed. Two cases were failures, one anatomically, having a recurrent cyst, and the other

one subjectively, at least; but she is a decidedly hysterical and neurasthenic subject. Twelve of the 49 complete and of the 5 partial successes were not in perfect *general* health, owing to moderate disorders not related to the ovaries or tubes. Pregnancy followed in one of nine vaginal celiotomies and in one of the 37 median ventral operations, both going to term. Of the 59 inguinal cases, 8 became pregnant. Of these, 5 matured, 2 had provoked abortions, and 1 aborted without known cause. (About three years ago another patient, who had been operated upon about two and a half years previously, gave birth to a normal child. The tube and ovary of one side had been removed and the remaining ovary two-thirds consumed by a Paquelin cautery. Amenorrhea continued after this for eighteen months, and then pregnancy still followed.)

The most important facts shown by these statistics are that a perfect cure of the organs under discussion resulted in only 5 out of 9 cases of the vaginal operations (too small a number for percentages); that, on the other hand, 86 per cent. of the median ventral and 88 per cent. of the inguinal cases recovered complete health of the parts, while a small additional percentage were partially relieved, and only about 3½ per cent. were positive failures.

Conclusions. 1. In patients who are not near the menopause, and who are not tainted by tubercular or malignant disease, one or a part of one or both ovaries can frequently be preserved, with or without the retention of the corresponding tube, in the following conditions:

(*a*) In follicular cystic degeneration or partial cirrhotic induration due to inflammatory processes or other circulatory disorders.

(*b*) In extirpating parovarian cysts, dermoid and fibroid tumors, with or without the uterus.

(*c*) With great caution, in the extirpation of non-papillary glandular cystomata that are devoid of surface papillomata and other evidences of malignancy.

2. *Necessary for success* in the resection of the uterine adnexa is the exercise of asepsis of the highest degree, and the use of a minimum amount of fine and readily absorbable suture material, exclusively and judiciously, as to tension.

3. A generous median ventral incision provides the best access for this conservative treatment of the adnexa in cases where septic accumulations in the parts are not certainly absent and when extreme

fixations of the parts abound. When these more extreme complications are not present, and a retroversion of the uterus exists, the resection of the adnexa is most auspiciously and easily effected via the dilated internal inguinal rings in conjunction with a thorough Alexander operation.

4. Vaginal celiotomy does not provide a favorable access for conservative surgical treatment of ovaries and tubes. It does frequently admit of ignipuncture, but is not auspicious for *resection* of ovaries.

5. Resection, with the care and technique above mentioned, is the more ideal and most conservative measure, and should be preferred when the parts are sufficiently accessible without undue traction upon their lateral supports, and when asepsis in the surrounding wound and in the general execution is reasonably assured; otherwise thermocauterization is probably better.

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DISCUSSION.

DR. C. C. FREDERICK, of Buffalo, N. Y.—I think it is well that the wave of conservatism has begun to make itself manifest in the last few years with reference to the subject of the removal of tubes and ovaries. A great deal of unnecessary and unsatisfactory work has been done in the past, and I am very glad that the majority of good men to-day are using their utmost endeavors in abdominal and pelvic surgery to retain every vestige possible of tube and ovary, especially the ovary. I have made careful records from my own experience as to the probability, in a large number of cases, of securing maternity subsequent to operation on women who have had primarily diseased tubes or occluded tubes, by any conservative work done upon the tubes themselves, and I am not aware of any patient whose tubes I have saved, where there has been any disease of them, such as occlusion, etc., who has ever become pregnant, particularly where I have done conservative work of that kind. But I do feel that the preservation of the ovary, or parts of ovaries, is a thing we should seek and strive for. I cannot picture to myself a more lamentable state of affairs than a woman who, previous to operation, has become neurasthenic, neurotic to an extreme degree, as the result of long-continued pelvic disease and physical suffering, deprived of her ovaries *in toto* at the time of operation, oftentimes unnecessarily, and then after operation being in a worse condition than she was before, particularly with reference to nervousness. She may be relieved of pain which she had from adhesions and other things about the adnexa, but added to that her nervous system is in a worse condition than it was before, and the further away she is from the age of forty-five or fifty, the more severe often the results of total extirpation of ovaries are. I think it is very well that within the last few years a halt has been called upon the wholesale removal of ovaries. When a surgeon opens the abdomen and finds a diseased ovary, even if he surmises that there will be trouble with the ovary on the other side, he is not justified in removing both of them. This, I regret to say, has been done. It is just as unreasonable to say that because a patient has tubercular disease of the left knee-joint he must likewise have the same disease of the right knee-joint, and consequently both knee-joints should be resected so as to guard against any trouble developing in the well joint, if there should be an infection of that side. I must heartily commend the work of Dr. Goldspohn or any other gentleman who works along the line of conserving tubes and ovaries. I know there are a great many men who have been enthusiasts on the subject of removal of tubes and

ovaries, and they will report cases where conservative work has been done by you and I, and they will say that the patients came to them in a worse condition than when we operated on them. Of course, all of our results are not ideal. A great many times we operate with a certain preconceived notion of what results we are going to get, and we do not get as good results in many instances as we have anticipated. But I believe in a fair percentage of cases the careful observer, the man of experience, the man who has done abdominal operations hundreds of times, who has seen a great many cases of disease of the tubes and ovaries, and who has examined them microscopically and macroscopically, will exercise great judgment in the resection of ovaries and tubes, retaining the healthy part and getting rid of the diseased parts, which in a large proportion of cases will be of benefit to the patients. It is true, in a small percentage of cases, pathologic conditions may be contained in the retained portion, and subsequent operations may be necessary to remove the retained portions, but "sufficient unto the day is the evil thereof," and rather than subject patients to unnecessary operations, I would give them the chance of conservatism, even if I had to operate a second time, and give them consequently the benefit of the doubt.

Dr. Edwin Ricketts, of Cincinnati, Ohio.—In the cases in which I have found small cysts of the ovaries and have cauterized with carbolic acid I have not observed pregnancies to follow. I recall one case in point in which a distinguished Fellow of this Association, Dr. Reed, had opened the abdomen of a woman for hematoma of the ovary. The ovary was removed. Dr. Reed thought that possibly the other ovary might be involved, but there was nothing wrong with it whatsoever. At the end of two years pain returned, and the woman gradually grew worse, until she was as bad off as she was when the abdomen was opened by Dr. Reed. The patient consulted me; I opened her abdomen, and found a large hematoma of the other ovary.

I speak of this to bear out the work so ably advocated by Dr. Goldspohn in his paper. It is a subject which demands our attention more than it has in the past, and we will be better able as a profession to differentiate after the abdomen has been opened in regard to diseased ovaries, and make an effort in certain cases to save as much as possible. The fact that the abdomen may have been opened a second time is not a contraindication against work along this line, for the reason that the prompt way of operating under these circumstances is to be commended. It is not a serious matter to make an exploration, and if we have to make two efforts to save a portion of one ovary, it is well worth the pains taken.

Dr. Charles Greene Cumston, of Boston, Mass.—In considering the question of cystic ovary I think I can say that, according to my experience, I have found two distinct types. We have the sclerocystic ovary, which is usually a small, contracted white ovary. That kind of ovary, in my experience, is found in multiparæ. A second type of cystic ovary is what I should call cystic degeneration, pure and simple. In these cases the ovary is enlarged, and on section very succulent. This form of ovary, it seems to me, as I look upon my cases, is more prone to occur in the unmarried or in the nulliparous patient. It is transformed into numerous cysts, varying in size, some pockets being as large as a hen's egg.

As to pain, I think both types of ovaries give rise to the same amount of pain, which is very distressing, whether the ovary be prolapsed or in place. The latter type, the large, succulent, cystic ovary, on account of its weight, is almost always found in the posterior cul-de-sac. The sclerocystic ovary, or the small, white, contracted ovary, has no tissue in it that can be left behind. These ovaries have to be exsected, because the patients are usually women who have had their share of child-bearing, and to render them sterile is of less importance.

On the contrary, in the succulent, cystic ovary we are dealing with entirely different conditions. We have a young woman, either married a few years or unmarried, and in this case it is essential to retain a certain amount of ovarian tissue at any cost. I have in mind, as demonstrating the possibilities of pregnancy, more than one case, but I will recite only one to you—one that made a vivid impression upon my mind. I only saw the patient recently, last July. I opened the abdomen of a young married woman, thirty years of age, who had been married six or seven years, and had never become pregnant. She and her husband were extremely anxious to have children. Both ovaries were of the succulent variety. One was completely transformed into small cysts, and I removed that ovary *in toto*. I left a small piece of the other ovary. After the operation she naturally menstruated, with regularity, from the small amount of ovarian tissue left, but with considerable pain the first two or three times, as is usually the case; but little by little, after the fourth menstruation, pain was practically absent. Today she is four months pregnant, and is doing well.

I have another case, almost exactly the same as that one, that I could report, but I do not deem it necessary to do so at this time. I know of other cases in the practices of other physicians who have resected the ovaries of supposedly sterile women, and after operation they have become pregnant and have gone on to term. I have no explanation of that fact to offer. I have no idea why it should be.

Regarding the question of the vaginal route in non septic cases, I have had quite a little experience in working through the posterior and anterior cul-de-sac. The disadvantage that Dr. Goldspohn has pointed out, of pulling down the already prolapsed ovary, or pulling down the ovary which is not prolapsed, and rendering it so after it has been replaced in the abdominal cavity, is a serious objection. Theoretically, it is so. Practically, we can resect the ovary, and I have removed or resected sixty or seventy cases through the vagina, or removed them as easily, as I can do, through the abdomen. I am unbiased in this matter. I do my work through both routes. I am not a partisan for one route or the other. But if I have a young woman whose abdominal wall I can save, I am going to do it. If the lesions are aseptic, the patient will not remain in the hospital more than ten days at most, and usually it is only a week, when she can go home after the operation has been done by the vagina. A year and a half ago I went to New Hampshire and read a paper on this subject before the New Hampshire State Medical Society. At that time I was enthusiastic about removing neoplasms through the posterior cul-de-sac. I have had trouble since, and I think I would like to mention a very unfortunate case I had last winter, which leads me to condemn the removal of extrauterine pregnancy through the posterior vaginal incision. I have done two of these operations by posterior colpotomy, in one of which I lost the patient from hemorrhage which I could not control. Before I got the abdomen open she was bloodless, and died.

I would like to ask Dr. Goldspohn a question. I have never done the operation, but it appears to me theoretically not to be proper. The question is this: If you have a prolapsed ovary, and you suture it to the abdominal wall to correct the prolapse, will you please tell us whether, in your experience, these patients complain of pain due to fixation of the ovary in the proper position? I have had no experience in this operation, but that point has occurred to me.

As to the suture material to be used in resection of the ovaries, Dr. Goldspohn has hit the nail on the head. The first reports of resection of the ovaries I read came from the other side of the Atlantic, from Pozzi, of Paris, and I believe at that time he employed horsehair, which would seem to be a non-absorbable material. I followed his example, and my first few resections, and those performed by my colleagues, were utter failures. The patients suffered as much after the operations as they did before them. Since using fine catgut, with careful adaptation of the borders of the ovary, to avoid the formation of a clot in the ovarian tissue, everything has been, so far as I have been able to ascertain, more than successful.

DR. GOLDSPOHN (closing the discussion).—In my haste in reading the paper I neglected to mention the results as to pregnancy. Of the 29 vaginal cases, 1 became pregnant; of the 37 ventral sections, 1 became pregnant; of the inguinal cases, 59 in number, 8 became pregnant. They went to maturity, with the exception of 2, which were induced abortions, and 1 of 10 cases aborted without known cause. The prospect for maternity is not a great inducement for salpingostomy. Hegar had only 1 pregnancy after 40 salpingostomies. Pozzi never had a case of pregnancy following salpingostomy; and he does not practise it, because he thinks that the mucous lining of closed tubes is too badly injured to convey an ovule. I have had one case of pregnancy occur from a tube that I had reconstructed. But conservative work on ovaries, showing our attempts to save that which is healthy, if for no other reasons, is very important. The subject demands our profound attention and care. It is not merely the capacity to reproduce children that will enable a woman to become married, but the fact that she has her ovaries means much psychologically to the husband and to the wife. If the ovaries are removed it will mean divorce or something worse, in many cases, striking instances of which I could narrate did time and the occasion permit. What is our experience in general practice? How frequent are the instances where people would like to speak to us to invite abortion, if they dared to, showing it is not the reproduction of children altogether, but a healthy wife, with normal capacity otherwise, which is sufficient. And what does all this mean, when we consider the acceptability and legal right of females for marriage? Think of all the perquisites and legal prerogatives that attach to marriage, in regard to the care for the woman as wife and widow, and her rights in society!

I will here state that some gentlemen who are too much wedded or enslaved to some one route of operation have gone so far as to say that these follicular cysts of ovaries were all normal, and it was unnecessary to deal with them, because their particular route of operating is not auspicious for correcting these evils.

The matter of multiple follicular cysts of ovaries originated with Hegar, and was seconded by a very exhaustive work by one of his assistants. After that a series of sections was made by Nagel, of Berlin, who thought he could do something great by declaring that Hegar had made a mistake; and he declared that, as he had found ovules in many (not all) of these cystic follicles, therefore they were all normal, and that it was a mistake to remove them. Since then, however, a number of investigators of certainly equal ability have proven Nagel's views and conclusions to be erroneous, and the declaration of

Hegar stands today stronger than ever, and the man who makes such assertions certainly does not know anything about it clinically.

In regard to the subject alluded to by Dr. Ricketts, the recurrence of disease in the second ovary after a year or two, the cause can be traced very frequently to an infected husband or other person with whom the patients cohabit. If he will carefully inquire into the conditions of the partner of the patient before she is allowed to go back home, he will find this out, oftentimes simply by boldly facing and questioning the husband. If we charge him to his face with having venereal disease, he may deny it at first, but will subsequently back down and confess. The husband, or whoever the person may be who cohabits with the woman, is infected, and consequently she becomes reinfected, and therefore she has disease of the second ovary. This is true in the majority of cases. Is that a cause for the sterilization of a woman prophylactically, because she is married to a wicked man?

As to pain in these cases, my experience is most emphatic that these ovaries cause considerable pain; whereas, the true neoplasms, actual cysts of ovaries, that are usually ten times larger than these ovaries in their beginning, cause almost no pain as long as they are not large enough to embarrass the neighboring organs by mechanical interference. In a number of cases of such ovarian cysts of the size of a fist, or even larger, I have allowed the women to go about their business, because they did not manifest any symptoms. I had simply discovered incidentally that they had ovarian cysts, but no complaint, and when I knew the patient was not in a position to undergo abdominal section at the time, I did not even tell them they had such cysts until the proper time came, when they should and could be subjected to operation. Only then did I reveal to them that there was anything wrong.

In regard to pain from ovaries that have been replaced and attached, I cannot say that they have never given rise to pain, but certainly not from the fixation or replacement to their normal habitat; but from their imperfectly healthy condition I have no doubt that they were the source of some pain at times, but usually only temporarily.

In anchoring or returning the ovary with its corresponding ampulla of the tube to its normal position, I never attach the ovary itself directly, but follow the method suggested by Sänger, some years ago, of passing a few sutures through the ovarian fimbria—that is, the little edge of membrane between the ovary and ampulla of the tube, an inch to an inch and a half long. You catch that in a couple of sutures about midway, which would be half an inch distant from both ovary and tube, and anchor that by shortening the infundibular ligament, so that the parts are suspended there and have an independent range of

motion, but never directly fixed. A number of those cases have given rise to pain afterward, which subsides in the majority of cases inside of two months. Other cases I have treated locally by galvanism, applied vagino-abdominally, not interfering with the endometrium, because I regard it as the holy of holies, comparatively; that is too much endangered and harmed by repeated introductions of galvanic electrodes, either negative or positive, and the treatment of endometritis by electricity I rule out entirely. Vaginally, we can insert the electrode, pass it up against the ovary very much as we do the end of a finger when we palpate the ovary, and pass a current of fifty to seventy-five milliampères through the region of the ovary. How much current strikes it I do not know. But it is the most positive and fruitful treatment for chronic painful ovaries that are not cystic with which I am familiar.

Dr. Walker.—Which pole is inserted in the vagina?

Dr. Goldspohn.—The positive pole. In order to avoid the harmfulness of the positive pole—because it cauterizes, no matter if it be gold or platinum, and the destructive effect in the vagina would be too great to permit of this treatment—I envelop the positive pole or electrode at the end, an iron or copper ball, 1½ cm. in diameter, with absorbent cotton which is wetted in water. This metallic ball is mounted upon an insulated staff, so thin that it is possible to introduce this electrode alongside of the finger, which acts as a guide to the electrode to get it in close proximity to or under the ovary. The caustic action then takes place between the cotton and the electrode, and thus we save the tissues.

SOME RARE AND ODD CASES AND EXPERIENCES IN PELVIC AND ABDOMINAL SURGERY: THE LESSONS THEY TEACH.

By C. C. FREDERICK, M.D.,
BUFFALO.

The accidents or failures following surgical operations are seldom paraded before medical societies. It is only human to forget our failures and our mistakes and dwell upon our successes. We all like flattery better than we do criticism. It is well that we should parade our successes, for it is well known how much more the laity parade our failures than they do our successes.

But among ourselves it is well to know our failures as well as our successes. I report some cases for their rarity, others for their novelty, and still others for the mistakes which they show. By our mistakes do we learn to avoid them, sometimes.

WOUNDED URETERS.

Case I.—Mrs. W. was operated on at Buffalo Woman's Hospital for a uterine fibroid the size of a full-term pregnancy. The tumor was of rapid growth, she having noticed it about one year before when just rising above the pelvic brim. It had grown in the lower uterine segment to so great an extent as to completely choke the pelvis. It was, therefore, one difficult to remove. In the course of its removal a section of the right ureter about one inch long was taken with the tumor. The cervix was also taken out. A uretero-ureteral anastomosis was made, passing the proximal into the distal end, with catgut sutures. In order to provide for drainage should the anastomosis fail, the cut end of the vagina was not entirely closed. Such is my custom in all total extirpations of the uterus to leave a little chink in the upper end of the vagina as a safety-valve for any ooze that may need to come away. In three days urine

began to come through the vagina, and continued to run for about eight months. She was importuned to have another operation, but she was obdurate. She hoped that she would get along without it. I assured her that she would never get well till she submitted. Suddenly the urine ceased to flow, an agonizing pain developed in her right kidney, and she thought that she must submit. Examination showed a large, tender, fluctuating tumor, an acute hydronephrosis. Before anything operative was done, however, the pain and tumor began to disappear, the urine did not pass into the vagina but into the bladder, and from that day to this, now over five years, she has been perfectly well.

CASE II.—Mrs. M. had a total extirpation of the uterus at the Buffalo Woman's Hospital for a lymphadenoma of the uterus. I do not think that the left ureter was cut across or entirely occluded by the suture, but I do think it must have been partially occluded by a suture. For a week after operation she had pain over the left kidney and was excessively tender on that side. She was very fleshy, and being so tender and withal nervous, no other bad symptoms presenting, I waited to see what would turn up. At the end of a week the urine began to come through the vagina, and continued for months.

From my experience with the previous case I had hopes that this would also heal. I was, however, on the point of advising operation, when the flow ceased for several days and then returned. There was some lumbar pain. Several times the urine ceased flowing through the vagina and then reappeared. The intervals of return increased, till at last it ceased permanently. For nearly three years she has been well.

I dare say that the majority of surgeons would deny the probability, yes, the possibility, of such a result as narrated in these histories. Yet such has been my experience in the only two cases in which I have had the ill luck to injure the ureters. It pays, therefore, to wait, in a condition like this, which is not dangerous, and give the reparative powers of the body a chance.

CASE III.—Mrs. B., nearly sixty years of age, had had a prolapsus uteri for years, for the support of which she had been wearing a Mackintosh supporter. She came to me with a uretero-vaginal fistula on the left side, evidently made by pressure of the edge of the cup against the vaginal wall. She refused to be operated upon,

and disappeared. I have always wondered if it also did not heal by granulation.

CESAREAN SECTIONS.

CASE IV.—Mrs. G., aged thirty-five years, had been in labor about twelve hours, at term. She had had several children. Her attending physician, when first called, found a rotund body presenting which felt like the fetal head, but he could not find the os uteri. Later the os was found anterior to the mass, high up and pressed forward over the pubic arch, the mass in the pelvis being a tumor below the uterus. The growth proved to be a carcinoma of the rectum entirely filling the true pelvis. She was removed to the Buffalo Woman's Hospital, where I did a Cesarean section the same evening. Frederick Cesar was a hearty lad, about four years old, the last I heard of him. The mother lived two and one-half years in comparatively good health, dying from acute obstruction. Two microscopical examinations were made of pieces of this growth which were taken from the rectum, one soon after operation and the second about two years later. Both were carcinomatous. The husband reported no obstruction to perfect coition up to the fifth month of pregnancy, when he began to notice something wrong. The growth evidently was of very rapid development during pregnancy, in contrast to its very slow progress after delivery.

CASE V.—The second case of Cesarean section is reported because the child died at delivery. The mother lived for several weeks, and died of nephritis. The uterus was delivered as usual, and the cervix was ligated with an elastic ligature. The anterior uterine wall was incised from the fundus downward. The placenta was found to be implanted directly under the line of incision, and some large fetal vessel in it was either cut or torn, for there was a large gush of blood, not from the uterine wall, but from the placenta. It was rapidly removed and the child promptly delivered. A forceps was at once placed on the cord, but the child was pale and exsanguinated. Respiration was sighing, the pulse was imperceptible, and saline infusion, oxygen, hypodermic stimulation, etc., were of no avail. It died inside of fifteen minutes. Previous to section its heart tones had been strong and vigorous.

I never before had seen the placenta implanted on the anterior uterine wall at a Cesarean section, and I have seen several. It

never had occurred to me that such an accident might occur. I therefore recount the case, so that others may profit by my experience. A more careful incision might have prevented the accident.

SIGMOIDO-VAGINAL FISTULA.

CASE VI.—There are two reasons for reporting this case of sigmoido-vaginal fistula and the operation done for its cure: first, because, so far as the writer can ascertain, it is unique; second, because its etiology is so obscure. Dr. J. B. Murphy, whose acquaintance with the literature of intestinal surgery and of rare cases is large, says it is unique.

The history, as given by the attending physician, is as follows: Mrs. H., aged thirty-two years, mother of four children, the last having been born one year previous to the beginning of present illness. Family history good; cancer and tuberculosis not among family diseases. On August 2, 1894, Dr. Chamberlain, of Meadville, Pa., where the patient lived, was first called. She had been ailing for several days. He found her considerably reduced in flesh and strength, with a fever and a foul-smelling vaginal discharge. Examination revealed sloughing of the vaginal portion of the cervix uteri, which was supposed to be malignant in nature. Antiseptic douching and general tonic and sustaining treatment was followed.

About August 15th she began to bleed freely from the vagina, at times profusely. This continued five or six days, much reducing her strength. September 5th, Dr. J. C. Cotton, of Meadville, saw her in consultation. Some soft tissue was cureted away, and a uterine sound was found to pass freely through the uterine wall into some cavity within the abdomen. There is no report of fecal matter having passed through this opening at this time. But soon after her condition became much worse, the foul odor continued, and late in November, after four months of illness, death seemed imminent, and was expected from day to day.

At this time her bowels began to move freely through the vagina, and she began at once to improve. Previous to this time for several weeks it had been nearly impossible to obtain any movements from her bowels. In three months' time the patient was well, all discharge except feces from the vagina had ceased, and with that exception she felt well.

On May 22, 1895, six months after the first appearance of the fistula, I saw the patient with Dr. Cotton at the Meadville General Hospital. On examination I found all the parts soft and free from any feel of a malignant nature. The left lateral half of the cervix and body of the uterus were gone, allowing the examining finger to enter the uterine cavity to the fundus. The parts were all covered with healthy-looking epithelium.

Evidently the left utero-vaginal junction, the uterine artery and vein, and a part of the left broad ligament had been destroyed by the necrotic process, this accounting for the profuse hemorrhages she had had soon after the beginning of her sickness.

My finger passed just to the left of the uterus into an opening which felt like gut; the edges of the mucous membrane of the same could be felt pouching out into the vaginal canal. Speculum examination showed this to be the case. Rectal examination revealed complete occlusion of the gut four inches above the anus, the rectum being of normal size till it reached the occluded end, which was simply a rounded cul-de-sac.

I operated immediately after completing the examination. When the abdomen was opened a mass of adherent gut, tube, ovary, and new deposit was found filling the left side of the pelvis down into Douglas's pouch. After freeing adhesions and checking hemorrhage, which was rather profuse, I found the point at which the sigmoid opened into the uterovaginal junction. The gut was cut loose from this attachment, leaving a free cross-section of the sigmoid at this point, and a large, ragged opening in the vagina.

The rectal cul-de-sac deep down in Douglas's pouch was located by having an assistant pass a long cylindrical speculum into the rectum and push it up from behind the uterus. An opening was made into the upper left-hand side of the occluded end of the rectum and one-half of a Murphy button placed there. The other half was placed in the free end of the sigmoid. The mesocolon was then cut and stretched to allow the end of the sigmoid to be carried low enough to join the two parts of the button. In such cramped space at the bottom of Douglas's pouch it was no easy matter to do, but finally it was done, thus making an end of sigmoid to side of rectum anastomosis.

Between the occluded end of the rectum and the point where the sigmoid opened into the vagina was about three inches of gut, which

was absolutely closed. This was the only available tissue with which I could close the opening from the peritoneum into the vagina. The uterus was fixed and could not be drawn to the left, and sloughing of the broad ligament had made tissue scarce. I therefore freed this piece of gut enough to bring it up into the opening, at the same time leaving enough blood supply to prevent sloughing. I stitched it over the opening, flushed out the abdomen with a warm normal salt solution, and closed the abdomen. She made an uninterrupted recovery. Her bowels moved through the button on the fourth day, and the button came away on the eleventh day. Had I had time I should have closed the cleft in the uterus also; but she had been under anesthesia for an hour, and I did not do it. Her bowel function has been perfect since. She has been perfectly well, except at times she has more uterine discharge than she ought. Menstruation is regular and normal, and her general health is good.

What was the probable cause of this sloughing primarily? Malignancy cannot be considered as the probable cause. A malignant slough would not have healed as this did, leaving no trace of infection in the surrounding tissues. At the time of operation the edge of the uterine wall which had sloughed was covered by a healthy epithelium. That part of the gut between the rectum and the sigmoid which was used to close the vaginal opening was completely occluded as by an inflammatory process. It is my belief that this began first as a sigmoid ulcer, possibly due to a spiculum of bone or some other foreign substance penetrating the mucous coat and setting up an infective inflammatory process which eventually invaded the broad ligament, vaginal vault, and left half of the uterus. I was unable to get a history of any bowel disturbance for a period prior to the real illness which might lead up to a probable diagnosis of sigmoid ulcer.

REOPENING ABDOMEN FOR SEPTIC PERITONITIS.

CASE VII.—Mrs. McK., aged thirty-two years, had a large, semi-solid tumor, about the size of a seven months' pregnancy. She had been pronounced pregnant, which was true, but it was not intra-uterine. She gave a history after operation of suppressed menses and suspected pregnancy one year before, and a history of recurring attacks of pain and fainting, at each of which times the tumor in-

creased in size and remained permanently larger. This history was elicited after her recovery. Before operation she was too sick to give any history.

On opening the abdomen I found a subperitoneal semi-fluctuating mass, of which the uterus formed a part of the anterior wall, and the posterior surface was covered by descending colon and sigmoid which had been raised up out of the pelvis. Coils of small intestines were adherent posteriorly. The peritoneum was in a clear area and the mass enucleated with difficulty. It consisted of partially organized blood-clots in concentric layers. The semi-fluctuation was due to a recent hemorrhage into the sac. Besides the clots and fluid blood a placenta and a dead six months' fetus in its membranes were also removed.

I then found that I had torn diagonally across the sigmoid completely. This had been done as the sac had torn while enucleating, the mesosigmoid forming a part of the posterior wall of the gestation sac. The gut was joined end-to-end by a Murphy button. To drain the gestation sac Douglas's pouch was opened freely and a drainage-tube passed into the vagina. The edges of the sac were then closed by continuous catgut suture. The abdomen was flushed and closed, leaving all the fluid it could contain.

Everything went beautifully for three days. On the morning of the third day she complained of abdominal pain, the pulse became rapid and thready, the expression became pinched, and green vomit began. I saw her six hours after this change. I thought that the button had given way, and proposed to reopen her at once. The abdominal cavity was overflowing with fetid, purulent fluid, and coils of gut were covered with flakes of lymph—a most unpromising condition. The button was found to be intact, but the edge of the sac had sloughed for about two inches, and the contents of the gestation sac had escaped into the peritoneum. After cleansing the cavities the edges of the sac were trimmed back into healthy tissue and resutured. The abdomen was again flushed and a strand of gauze packed over the line of sutures, and the end carried out at the lower end of the abdominal incision. She was stimulated and well nursed. The following day she was still pulseless and cold. I told her there was no hope of her recovery, and on my departure left a signed death certificate at the hospital. The same afternoon she began to show some pulse, her bowels moved freely through the

button on the following day, and from that time her recovery was rapid and uninterrupted. She now is as well as ever in her life. The button came away on the ninth day.

CASE VIII.—Mrs. C., aged thirty-eight years. Has a pyosalpingitis which has been discharging for a year through the bowel and at times through the bladder. It is now discharging through both viscera. Her skin is sallow, she is emaciated, has no appetite, has temperature constantly—in fact, is generally septic. The left tube and ovary were enucleated from dense adhesions and the openings into the sigmoid and bladder closed. The abdomen was thoroughly flushed and closed without drainage, the belly being left as full of normal salt solution as possible. A self-retaining catheter was placed in the urethra.

Patient did well till the fourth day. No signs of peritonitis were present, and bowels had moved. The pulse began to change in frequency and character, and all the symptoms of rapid septic infection of the peritoneum came on. She was reopened in a few hours. The sutures in the gut were all right, but those in the bladder had sloughed. The edges were trimmed back into apparently healthy tissue and reunited in layers, mucosa, muscle, and peritoneum. The lymph was removed from all the intestines and the cavity generally thoroughly cleansed. Gauze was packed over the line of suture and the end carried out at the lower angle of the incision.

She improved at once, and began to take small quantities of nourishment. Her bowels moved daily with cathartics and enemas. All signs of peritonitis passed away, but her temperature and pulse still kept up, with profuse sweating. In four days urine began to come up through the wound, showing the failure of the second suture of the bladder to unite. The sinus and bladder were irrigated frequently, both from above and through the urethra. She died on the sixteenth day after operation, not from septic peritonitis, but from general sepsis. Although she eventually died, we must recognize that the septic peritonitis was stopped in its fatal course. The sinus from the lower angle of the incision to the hole in the fundus of the bladder was completely walled off from the general peritoneal cavity, which was clean, although showing many adhesions. Had she been in a less septic condition at the time of operation there is every reason to believe that she would have recovered.

When the septic process is not the result of infection at the time

of operation, but secondary in nature, dependent upon the non-closure and leaking of a line of suture in some viscus, then the chances for success in promptly reopening the abdomen are best. In fact, I might go so far as to say that only in that class of cases is it indicated. If these openings into viscera have been caused by intra-pelvic pus collections draining through them, we have primarily an infected area to bring together with suture, and there is no certainty of securing primary union. If there has been no primary infection of the peritoneum, the patient will go along well till such time as the line of suture gives way and the peritoneum is invaded by septic material. At such time the change is as prompt and as well marked as in perforating typhoid ulcers or perforative appendicitis. Then is the time to operate promptly, and the results promise as well as for prompt operation in any perforative process.

DOUBLE RUPTURED TUBAL PREGNANCY.

CASE IX.—Mrs. F., aged thirty-eight years, mother of several children, gave all the signs and symptoms of ruptured tubal pregnancy. History showed rupture to have occurred primarily about ten days prior to operation. The pelvis was full of blood-clots on both sides, and both tubes were found ruptured and the seat of hemorrhage.

There have been several cases reported of recurring tubal impregnation in the same patient, but I never have seen one reported of simultaneous rupture of both tubes.

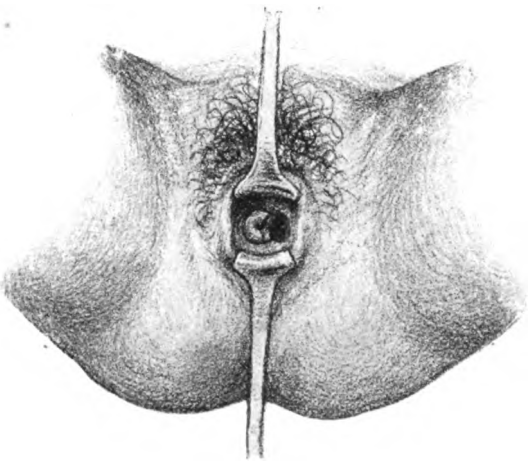
ABSORPTION OF NON-OPERABLE FIBROIDS.

CASE X.—Mrs. P., aged thirty years, had a uterine fibroid, which on opening the abdomen was found so universally adherent as to render it advisable not to remove it. The fundus of this growth lay about midway between the tubes and umbilicus. In one year after operation the growth has almost entirely disappeared.

CASE XI.—Mrs. E., an exactly parallel case to No. 10.

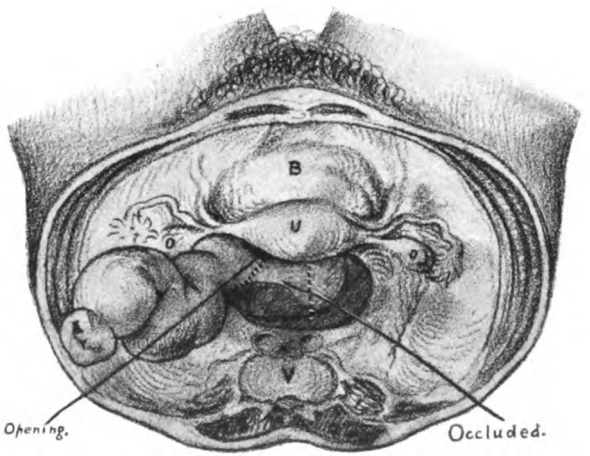
How or why a retrograde process was established in these cases of fibromyoma of the uterus simply by opening the abdomen is about as inexplicable as is the similar result in some cases of tubercular peritonitis.

FIG. 1.



Sigmoido-vaginal fistula.

FIG. 2.



Sigmoido-vaginal fistula.

MECKEL'S DIVERTICULUM AND PATULOUS URACHUS.

CASE XII.—Master W., aged eight years. This child has never been strong. When about four years of age he began to have abdominal pain, and redness and swelling about the navel appeared, followed by a discharge of foul-smelling, grumous fluid and some blood. In a few weeks the discharge ceased, and reappeared again in a few weeks with the same pains. When seen by me the pain and discharge had been constant for over six months, the umbilicus was swollen, red, and the skin excoriated for an area of two inches in diameter. This little fellow was being given one-quarter-grain doses of morphine several times daily, and then was in pain a great part of the time. A probe passed downward toward the base of the bladder about two inches into a pervious urachus.

Operation.—An incision was made in the abdominal wall down to the director in the open urachus, and the latter excised. While excising the infected umbilicus a diverticulum from the ileum was found leading to the umbilicus. It was removed with the umbilicus. Since operation the pains have entirely disappeared and the boy is gaining color and flesh. Meckel's diverticula are rare, so is a pervious urachus, but to have both associated in the same patient is still more rare, hence my report of it.

PUNCTURED UTERINE WALL.

CASE XIII.—Mrs. B. had an intrauterine fibroid which had been expelled and lay in the vagina. The growth was about as large as a medium-sized orange. The cervix had retracted about what seemed to be a short pedicle. With curved scissors I proceeded to cut the capsule near the pedicle, so as to enucleate the tumor. When the growth was out I could pass two fingers through the opening in the uterine wall directly into the peritoneal cavity. The apparent pedicle was a partially inverted uterus, dragged down by the contracting os as it slipped back over the fibroid. Hemorrhage being quite free, and it being difficult to close it easily through the cervical canal, I opened the abdomen and did it more readily and satisfactorily. Lesson: look out for short pedicles on extruded intrauterine fibroids.

CASE XIV.—After abortion the attending physician had cureted the patient for retained secundines. He perforated the fundus pos-

teriorly and drew a loop of ileum into the opening with a placenta forceps. Recognizing that something was wrong, he desisted and waited for developments. Soon symptoms of intestinal obstruction came on, and on the second day I saw her in the evening. She was removed at once to the Woman's Hospital and operated. The gut was incarcerated, but not strangulated. It was easily pulled out of the opening, which was closed with a suture, and the patient promptly recovered.

CASE XV.—A second case to which I was called, following curetage after abortion, did not result so favorably. In this instance the physician went through the uterine wall, pulled down a loop of gut, and never quit till he had stripped six feet of it from the mesentery, and then cut it off and sent for me. I arrived in time to see the patient die. Comment is unnecessary.

DISCUSSION.

DR. LEWIS S. MCMURTRY, of Louisville, Ky.—This is, indeed, a most interesting paper, and the Association is certainly indebted to Dr. Frederick for grouping together these cases. Josh Billings said that "Success does not consist in never making a mistake, but in not making the same mistake twice." Such cases convey to us very useful lessons, and from the preface that Dr. Frederick made to his paper I thought he was going to submit to us an entirely different contribution. He said he was going to submit a paper showing a number of surgical errors that fall to the lot, in a greater or less degree, of surgeons, but he did not do so. Throughout all these cases I can find no evidence of any mistake of Dr. Frederick, although in the last case there was a slight anatomico-pathologic error on the part of the surgeon who operated before he arrived.

In regard to the case of severed ureters with fibroid tumors, this is an accident that is very common. I have never had this occur except in one instance. Certainly his experience was very delightful and an exceptional one in the case where the sutured ureter appeared to have failed, and the urine was pouring out, and then to have it resume the natural channels spontaneously without surgical intervention. It is a very remarkable experience, and seems to have been repeated in a second case, which was different somewhat, and is also a very unusual experience. It shows what nature can accomplish in these cases, and

it is better to give nature a good chance before we resort to extremely aggressive surgery. I would like to ask Dr. Frederick if these injuries to the ureters occurred in his early operative experience or later?

DR. FREDERICK.—In the early years of my operative experience.

DR. MCMURTRY (resuming).—Accidents to the ureters almost always occur in the early experiences of operators, because they lose sight of the possibility of finding a ureter connected with the fibroid, but if they are on the lookout for the ureters they can dissect the ureter out, save it, and it is wonderful how it will bear manipulation in dissecting it out so as to avoid injury to it later. There is one case I was particularly impressed with, that is, the sigmoidovaginal fistula, with destructive inflammation of a portion of the uterine cervix and also of the body of the uterus, and then a complete occlusion of the rectum, followed by a skilful operation with the Murphy button. I quite agree with him that that case was unique, and it presents for our consideration some very important and interesting points. Of course, there is a great surgical lesson in that case. In the first place, I venture to express my belief, from the recital of the case, that the physician who probed the uterus pushed the probe through the uterine walls into the large bowel, and that the probe was infected. I do not know what the theory of Dr. Frederick is, but that is what I would infer from the report of the case. The patient did not have cancer. And another important point is that there was no history of syphilitic disease mentioned; consequently there must have been a very profound and virulent infection, and there is no infection there which could be conveyed ordinarily unless it be syphilitic, and which, in the absence of malignant disease, could have produced this destructive inflammation. Hence, I am constrained to believe that the only explanation we can get of this extraordinary and exceptional lesion is that the physician who, just before the inflammatory process began that destroyed these tissues, shoved the probe through the uterine walls that had upon it some very active virus, established a focus of infection of such a virulent and destructive character that it destroyed the tissues.

The occlusion of the rectum is unusual, and I would like to ask Dr. Frederick how much of the fecal contents passed through the opening into the vagina?

DR. FREDERICK.—All of the contents. The patient was sick for four months before any feces passed into the vagina.

DR. MCMURTRY.—There must have been inflammation extending also to the rectum. Simple inflammatory conditions do not produce strictures and occlusion of the rectum. For example, the ulceration of dysentery never produces stricture of the rectum. Simple ulcera-

tive rectal conditions do not produce strictures. Strictures of the rectum are due to malignant or syphilitic disease, and the occlusion of the rectum here is of a very peculiar character, and something I cannot exactly understand. The case was managed in a masterly manner, and certainly everything was done that should be done, as the result shows.

In the case of the patient of whom the doctor presented a certificate of death, the case of putrefying ectopic pregnancy, I think Dr. Frederick's criticism of himself is very correct. He should have drained that case at the time.

DR. FREDERICK.—The one I did not drain died.

DR. MCMURTRY.—You reopened the gestation sac?

DR. FREDERICK.—I sewed up the gestation sac.

DR. MCMURTRY.—That is an interesting case. It brings up for consideration one subject, and that is the question of reopening the abdomen for septic conditions or otherwise, and there is one important point about that question: that ought to be decided very early in the after-treatment from the primary operation. I think that when these cases are allowed to go on, immediately after the secondary operation the patient will go into collapse, but in this case it was certainly done in the very nick of time.

Dr. Frederick has presented to the Association a number of subjects, any one of which would occupy our attention for the entire forenoon, and I have simply made some running comments on the cases he has presented. I am sure we are all grateful to him for presenting a paper so practical, and I wish to congratulate him on the splendid results that he has obtained in the cases.

DR. M. ROSENWASSER, of Cleveland, Ohio.—As Dr. McMurtry has said, this is a very valuable contribution, and we could occupy a long time in discussing it. I wish to offer a criticism on the operation for suppurating hematocele. There were dense adhesions around and back of the sac; the doctor tried to enucleate the sac.

DR. FREDERICK.—I did not do that. I did not separate the adhesions from the sac. I made an incision in the free space in the sac, and in working in there the tension brought upon this tore the sac across the sigmoid, which was a part of the sac.

DR. ROSENWASSER.—In these cases I do not attempt to enucleate the sac or to separate the adhesions. I find a free space, open it, and clean out the cavity; I then stitch the edge of the sac to the edge of the abdominal incision, thus completely walling off the peritoneal cavity, and simply drain the sac, which is now extraperitoneal. I drain by means of gauze or a large rubber tube to keep the opening

patent; intra-abdominal force so compresses the sac that it does not occupy much space. The work can be done from above by abdominal section, or we can do it by vaginal section without interfering with the abdominal cavity.

DR. MCMURTRY.—I would like to add a word or two in regard to the case of Cesarean section in which Dr. Frederick lost the child. In that case, in cutting into the placenta, I understood him to say in his paper that he regretted he did not make the transverse incision higher up; I would ask him how he could have known that the transverse incision higher up would not have entered the placenta?

DR. CHARLES GREENE CUMSTON, of Boston, Mass.—I would like to report one case of injury of the ureter in connection with the paper of Dr. Frederick. It is the only one I have ever had. The case occurred last winter, when I was enucleating an intraligamentous fibroid. The growth was adherent to the walls of the broad ligament; it was peeled out with considerable difficulty, but when I arrived at the cul-de-sac, the bottom of the ligament, a very large bundle of veins surrounded the surface of the growth at its base, and it was impossible to distinguish the ureter, although the enucleation was done with care, and was an easy matter until I got down to the base, where a certain amount of venous hemorrhage occurred and obscured the view. But I was under the impression I had avoided the ureter. I ligated the base of the growth and removed it. The broad ligament was sutured and the abdomen closed. The patient for one week voided from thirty-two to forty ounces of urine daily in perfect condition. At the end of the week following the operation she began to have pressure symptoms of the bladder, and on bimanual examination I found a large cystic mass (it was a left broad ligament case) on the left-hand side, pushing the uterus well over to the right, pressing on the bladder, and filling the left side of the pelvis pretty well. I presumed, in all probability, it was an intraligamentous blood-clot, because there was free oozing from the walls of the broad ligament during the enucleation. I opened the abdominal incision and discovered a large cyst; the broad ligament had perfectly united. When I had gotten hold of it in the abdomen, it seemed to me to have a peculiar feel for a cyst containing a blood-clot. I punctured it, and a peculiar-looking liquid escaped. I could not say how much, but it was a large amount. I drained it. It occurred to me at the time that it was urine, and it was. The broad ligament formed a second bladder. I was in hopes that possibly by draining the cyst it would eventually close. Knowing that I had removed fully half an inch or three-quarters of an inch of the ureter, it was almost impossible to have considered the question of uniting it

again. I considered the question of ligating the ureter and allowing hydronephrosis to take place, but that was not very feasible. The case resulted in a nephrectomy, but so far as I am aware, and I have looked up the literature quite thoroughly, this is the only case where the ureter has been cut so that the urine was voided into one broad ligament.

There is only one point more I would like to speak of, and that is with reference to Dr. Frederick's case of perforated sigmoid, with occlusion of the bowel. I have had a few cases of rectal surgery. I have resected the rectum in two cases of syphilitic stricture, which, of course, is the only treatment for that condition, and in both of those cases, before doing a Kraske operation, I have made an artificial anus on the right side, allowing the bowel to empty itself entirely from the right, so that the gut below was completely cleansed. In these cases I do not believe it is well to use the button if we can do clean surgery, and clean surgery can be done by means of sutures. That is the only thing that occurred to me, that an artificial anus might have allowed the opening to close by granulation. It might, or it might not.

Speaking of suture material, I will say that I have been using celluloid thread in my gastrointestinal work, which I have found superior to anything else for this kind of surgery. The longer it is boiled the stronger it becomes.

Dr. A. Goldspohn, of Chicago, Ill.—I believe Dr. Frederick in his paper mentioned one case in which there was disappearance of a fibroid a year or so after the operation, although the fibroid was not removed. The question is, What accounted for the disappearance of this tumor? I would like to ask him whether or not the woman conceived in the meantime, whether pregnancy figured in the case? because after pregnancy fibroids have been known to be very much diminished in size, changed in their consistence, and I think occasionally have disappeared.

He also spoke of one case in which he sutured the bladder twice. I had a case about six months ago which was a parallel to that one, in that there was an ovarian cyst which had become infected probably from an intestinal source, and formed a large abscess, with the intestines and bladder firmly attached to it all over. After opening the abdomen and palpating the tumor wall, in attempting to free the tumor from the adherent intestines without opening it, I opened the bladder. I at once, before the tumor was opened, and before any pus made its appearance, sutured the bladder with two rows of buried catgut, the knots of one row being inside of the bladder and the second row being of interrupted superficial sutures outside of the others. I could not

extirpate the tumor, but I opened it and drained. In that case everything ran along smoothly for about five days, when the bladder leaked, urine escaping into the cystic abscess cavity, with whose contents it was voided outward. The question of secondary suturing of the bladder was in my mind, but I did not attempt it because I feared it was useless. It would be stitching in a very septic field, and I did not do it. The cystic abscess cavity contracted until it was practically gone, and we had then an abdominal fistula of the bladder, which also contracted and eventually closed. Of course, the patient had a very violent cystitis. The bladder was irrigated twice daily for a number of weeks. I feared an ascending infection by way of the ureters, but it did not occur. The outcome has been successful, with closure of everything, although only after two reopenings, for a short time, of the bladder sinus.

Dr. N. Stone Scott, of Cleveland, Ohio.—With reference to injuries of the ureters, there is one important point that has not been brought out. In the treatment of an injury to the urethra in a perineal section the proper thing to do is to keep the distal end open, because we are very much more likely to get a urethral fistula unless we do this. It seems to me, in the treatment of ureteral fistula, the same general principle applies, namely, that the ureters should be catheterized, and I would like to ask Dr. Frederick if such effort was made. I realize that catheterization of the ureters in his case would be difficult, because of the rearrangement of the proximal and distal end, due to the operation; still, if they became thoroughly adherent, it might be possible to catheterize them, and one would be much more likely to get a good result than if left entirely to nature unassisted.

Dr. Frederick (closing the discussion).—In response to Dr. McMurtry's question as to the incision of the uterus in the case of Cesarean section in which I lost the child, he wanted to know whether I would have done better if I had made a transverse rather than a longitudinal incision of the uterus. I will simply say that the placenta is more liable to be implanted upon one or the other surface, anteriorly or posteriorly, than to be in the fundus, and possibly would have been avoided in that way.

In reply to the remarks of Dr. Rosenwasser with reference to not having stitched the sac to the abdominal wall, I did not do that because I had torn the sigmoid clear across in cleaning out the sac, and I placed a Murphy button. The patient was not in a good condition. She had been septic for a long time, and I had to make a short operation. Consequently, I used the Murphy button, and as part of the sigmoid was denuded of peritoneum I could not make an ideal

anastomosis with the Murphy button; I therefore feared my line of union with the Murphy button. That was the thing I was afraid of, and I purposely cut into Douglas's pouch and put drainage in there, so that if the button did get away I would have an outlet for the gut. That is the reason I did it. As the case terminated, it proved that I was wise in the course I pursued. I failed to state when the Murphy button was passed; it did not come through the rectum, but through the gestation sac, and the feces passed through the opening into the vagina for about one week, which showed the wisdom of my opening into the vault of the vagina rather than into the abdominal opening.

In reply to Dr. Cumston's remarks with reference to inguinal colotomy, in this case it would have been unwise. There was an occlusion of the sigmoid opening into the vagina, and by doing an inguinal colotomy we would have had a permanent inguinal opening. Why? Because three inches of the gut below the sigmoid opening into the vagina was absolutely and totally closed. When I put my finger into the rectum I ran into a closed cul-de-sac or end. It was not a stricture, but an absolute occlusion of the gut, and it was that piece of occluded gut I stitched into the opening where I had freed the sigmoid. I made myself conversant with the fact that it was absolutely occluded before I used it, because I did not want to have any dead space with mucosa there to produce a cyst later. Therefore, I could not make an inguinal colotomy. The only thing I could do for the patient was to make an anastomosis in that case. I do not believe it would have been possible to have made a tight joint by suture, because it was very difficult indeed to insert a Murphy button. In a place where there had been a high grade of inflammatory process that had occluded the gut, had sloughed out all of the left lateral half of the uterus and vault of the vagina, you can understand there was an immense amount of new tissue and adhesions, and I felt satisfied to be able to get the two halves of the Murphy button together and a tight joint under those conditions.

In reply to Dr. Scott's query as to catheterization of the ureters, I did not do it in the case I have reported, and I will tell you why. When the urine began to pass through the woman's vagina I had no idea that the two ends of the ureter were so near to each other. I had supposed that the sutures had pulled out, that the ends of the ureter were quite widely separated, and that the urine would continue to drain down through the fistulous tract into the vault of the vagina. But the subsequent course of the case showed the contrary. I made an opening into the distal end of the tube, through which I passed my

sutures and drew the proximal end down into the distal end; I made a slit in the side of the distal end, carried some traction sutures from the proximal end to draw it into the distal end, and sewed up the slit in the side, and in the distention of the ureter, in all probability, that was the thing that leaked. The ends of the ureter remained in contact and were adherent. The urine passed out of the fistulous opening and drained there until the opening was closed finally by granulation. In the meantime the distal end of the ureter had become contracted from non-use. I had supposed, as I have said before, that the two ends of the ureter were not near each other, and that the distal end of the ureter had been closed by granulation, and I would have to do a nephrectomy. Just before that there was a sudden flow of urine into the bladder, the obstruction and contraction of the distal end of the ureter having been overcome by the intrarenal pressure. That is the reason why I did not catheterize the ureters.

THE PATHOLOGY AND TREATMENT OF BILOCULAR STOMACH, WITH A REPORT OF TWO CASES.

By CHARLES GREENE CUMSTOM, M.D.,
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WITHIN the last four years it has been my privilege to have under my care two patients with bilocular stomach, and I think, from the relative infrequency of these cases, and from the fact that surgery of the stomach is now seriously inviting the attention of the surgeon, that no apology is necessary on my part for presenting before this learned body a few remarks on the pathology and the treatment of this interesting abnormal condition and recording somewhat in detail the histories of my two cases.

At the present time I believe it is generally admitted that bilocular stomach may be either congenital or acquired, but although the pathology of the acquired form is now fairly well understood there is a difference in opinion regarding the etiologic factors of the congenital variety. That a congenital type of bilocular stomach does exist is certain, since this condition has been found in the fetus by Sandifort. Meckel, from the embryonal point of view, has given the explanation that this congenital defect must be regarded as the result of an insufficient development of the organ and that it is possible that the laminæ which early in embryonal life form the stomach are undeveloped. It is also possible that this anomaly of the stomach results from the coalescence of half of the stomach wall and half of the intestine, which in this instance do not come together fully; or the mass from which the two stomach laminæ are derived does not undergo a complete division. In the *Journal of Anatomy and Physiology*, vol. xvii., is to be found a very comprehensive discussion as to the various possible ways in which a congenital bilocular stomach may arise, written by Roger Williams and entitled "Cases of Congenital Contraction of the Stomach, with Remarks." He bases his memoir on the observations made by many anatomists

who have occasionally found a mild form of contraction in the middle of an otherwise normal stomach, but along with this another narrowing has been present which separated the antrum of the pylorus from the remainder of the stomach in such a manner that the organ formed three pouches. These were easily demonstrated when the stomach was inflated. Since there also occasionally occurs a third narrowing arising in the region of the cardia, which, according to Williams, separates the greater cul-de-sac from the remainder of the stomach, according to this authority, it results that the organ may be divided into four sections by three strictures.

This explanation conforms with the opinion of physiologists, who assume that under normal conditions the stomach presents temporary contractions at the points named during the process of digestion, and who base these opinions on the results obtained from necropsies performed immediately after death, especially where this event occurred suddenly during the process of digestion and which demonstrated that the stomach presented two or three contractures. Now, inasmuch as the points where the strictures occur in congenital sacculated stomach are seated just at these places where physiologic constrictions occur, Williams explains them as being exaggerations of the temporary physiologic constrictions.

Rokitansky mentions as congenital defects of the stomach circular strictures at the cardiac or pyloric end of the organ, and also, in rarer instances, stomachs which are divided into several compartments by rings of sclerotic tissue.

Lesshaft states that in some instances the stomach may take on the aspect of the small intestine and these strictures cannot be compensated for; some authors are of the opinion that they are due to a special development of the transverse muscular fibers. Mazzotti has recorded a case of congenital bilocular stomach in a woman fifty years of age which in his opinion had been produced by an unusual development of the transverse muscular fibers in a certain point in the wall of the organ and which were the cause of the stricture. In another instance recorded by Saake, this authority was able to demonstrate the congenital origin of the stricture of the stomach by dissecting out two abnormally developed bundles of muscle which were transverse in direction, and which, according to this authority, demonstrates the physiologic torsion of the stomach during its development if this localized overgrowth of bands of muscle fibers be considered as a vice in formation during the embryonal period.

On account of the various segmentations which the human stomach may occasionally give rise to, Cruveilhier and other authorities went so far as to assume that there existed an analogy between the human stomach and that of the ruminantia, but on the other hand Hudson doubts, and in all probability he is quite justified in so doing, the theory that this deformity represents an atavistic tendency. He clearly demonstrates that such defects are never met with in the higher orders of monkeys, and also he believes that there is a great difference between a division into two similar parts and the highly differentiated stomach of the ruminating animals.

In 1882 Carrington presented three specimens of congenital bilocular stomach to the Pathological Society of London, and he discussed the question as to the possibility of the condition being produced by an abscess during fetal life, which proposition he advanced from the fact that abscess of the stomach walls had been met with in the newly-born. He quoted a case observed by Goodhart in which a child had died of an abscess of the stomach thirty hours after birth, having hematemesis for a symptom.

Guillemot traces the etiology of congenital bilocular stomach to an abnormal development in the arterial supply to the organ. This is frequently observed, and results in a separate blood-supply to each part of the stomach.

In the case of an acquired bilocular stomach several etiologic factors are to be considered, and first of all I would mention gastric ulcer, which, as we all know, may undergo the process of repair with the formation of a linear cicatrix involving part of the circumference of the stomach, and according to Grünfeld bilocular stomach represents thirty per cent. of those changes of shape of the organ due to an extensive process of cicatrization. I would add, however, that this author in his extensive statistics included the very mildest instances of circular contraction.

Lunnemann believes that a large majority of cases of gastric ulcer heal by a process of cicatrization, and if the ulcer has only produced a very limited defect in the wall of the stomach we then meet the characteristic white, flat, radiating cicatrices which finally result in the contraction of the mucous membrane in the neighborhood, drawing it toward the former lesion and producing radiating folds of the gastric mucosa. If, on the other hand, extensive ulcers undergo cicatrization prior to the occurrence of erosions or perforation of the bloodvessels, the result will be extensive changes in the shape of the stomach, and if the ulcer was situated toward the middle

of the organ the resulting cicatricial contraction will produce the characteristic hour-glass stomach.

In these cases the stomach forms two sacs which communicate the one with the other by a narrow orifice, and the only essential condition for the development of a typical bilocular stomach following an ulcer of the organ is that the site of the causative pathologic process should be about at the middle of the lesser or larger curvature and extend more or less over the anterior or posterior wall of the organ. Other conditions that should be taken into consideration are the long duration of the ulcer, its slow cicatrization or its transverse extension in relation to the longitudinal axis of the organ. It should also be borne in mind that during the process of cicatrization of gastric ulcers extensive adhesions may be developed between the stomach and the neighboring viscera.

Rasmussen has called attention to what he terms a pressure sulcus in the etiology of acquired bilocular stomach, and establishes a direct causative relationship between the conditions and also a connection between gastric ulcer and pressure sulcus, considering the former lesion as an intermediary link for the formation of the hour-glass stomach. This author is at variance with the general opinion that strictures of the stomach which are observed following the presence of gastric ulcer are only due to the cicatricial contraction of the ulcer, and this same authority asserts that in many cases the pressure sulcus of the liver continues over the stomach, following a rather oblique direction downward from the middle of the lesser curvature or a little nearer the pylorus, toward the larger curvature, where a distinct impression can be found.

Now from the fact that Rasmussen found cicatricial tissue following gastric ulcer in the middle of the lesser curvature or somewhat nearer the end of the pylorus, that is to say, just at the point where the pressure sulcus is situated, in the large majority of cases, and since he was also able to demonstrate its presence in all cases of cicatrices of gastric ulcer after his attention was called to this sulcus, he is of the opinion that the latter sulcus represented an important etiologic factor of gastric ulcer which consequently would have to be considered as the result of pressure necrosis.

According to the same authority this pressure sulcus of the stomach is capable of directly producing more or less well-developed strictures of the organ. When large cicatrices are absent, Williams has denied that the production of bilocular stomach could result from the use of tight lacing in the female, for the simple reason that

were this the case, this condition would be far more frequently encountered. Hirsch, while not completely repudiating the theories of Rasmussen, believes that although occasionally slight anomalies in the shape of the stomach may be occasioned by pressure from the left costal border, and that over those regions of the stomach which are subject to pressure from corsets a certain disposition for the formation of gastric ulcer is quite liable to be created, still this mode of origin appears rather improbable when we consider the advanced degree of stricture formation in the stomach where the stenosis may have contracted down to such degree as only to admit of the passage of a finger or a pencil. The very large amount of cicatricial contraction resulting from the larger and more extensive gastric ulcers is quite sufficient to explain the etiology of a large number of cases of acquired bilocular stomach.

Bilocular stomach may be produced by a corrosion of the gastric mucous membrane from the ingestion of acids or alkalies, but the only case that I am aware of in which operation was undertaken for its relief is the one recorded by Klein. The patient was a female, twenty-seven years old, who had tried to commit suicide by swallowing concentrated hydrochloric acid, and whose stomach was immediately washed out when she was taken to the hospital. She vomited some blood for a few days, but was discharged at the end of a fortnight, at which time she could swallow small pieces of meat. This improvement did not continue long, and one afternoon she vomited the food taken. The treatment then consisted in passing bougies. The condition, however, getting worse, it was decided to operate upon the supposition that there was a stenosis of the pylorus. When the peritoneal cavity was opened a few friable adhesions were found between the stomach and the peritoneum, but the stenosis was near the cardia, about three finger-breadths from the pylorus. It was a very fibrous stricture, giving rise to a typical hour-glass stomach, the stenosis being especially marked on the larger curvature. By invagination the lumen of the stricture would hardly admit the tip of the finger. The muscular walls of the cardiac region of the stomach had undergone considerable hypertrophy. As the duodenum could be easily brought over to the cardiac region of the stomach, gastroduodenostomy was successfully performed.

Rudnew has recently called attention to syphilitic lesions of the stomach. They are produced either in consequence of primary changes taking place in the gastric mucosa or from a pathologic process arising in the serous membrane. Contraction of the newly-

formed granulation tissue produces after a certain time a great diversity of deformities of the stomach, among which may be mentioned circular bands of fibrous tissue giving rise to a bilocular stomach or even a plurilocular variety. Einhorn distinguishes three forms of syphilitic affections of the stomach: (1) Syphilitic gastric ulcer; (2) syphilitic neoplasms of the stomach, and (3) syphilitic stenosis of the stomach.

I personally should admit, without any hesitation, that syphilis is probably an etiologic factor in many cases of bilocular stomach and stricture of the pylorus, because other experiences in general abdominal surgery have convinced me that this potent and versatile poison is responsible for a large number of heretofore unknown surgical affections of the abdominal and thoracic viscera, but unfortunately up to the present time only a few cases of bilocular stomach can be with certainty traced to syphilis.

Carcinomatous affections of the stomach are quite liable to produce the bilocular variety, and it may be assumed with a fair amount of certainty that cancer frequently causes this condition, which is easily understood when we recollect the great tendency of chronic gastric ulcer to undergo carcinomatous transformation. It is probable that when a bilocular stomach results from carcinoma of the organ the neoplasm is of the scirrhus variety, and by contraction produces a stricture similar to that produced by cicatricial tissue.

In considering the pathology of bilocular stomach we must discriminate between the congenital and acquired forms. The congenital form is to be distinguished from the latter in that it is usually free from adhesions with the neighboring organs, and that the stricture is longer and is not formed of cicatricial tissue, but of the normal structures forming the walls of the organ. The congenital variety recalls very closely the stomach of various rodents, such as the mouse, and where several pouches are found they closely resemble the stomach of the ruminantia, and since many do not have the shape of the hour-glass stomach, properly speaking, the term "segmented stomach" would, I believe, be far more appropriate.

In the congenital varieties the cardiac part of the stomach is usually larger than the pyloric. The strictured part connecting the two pouches is glossy white, and, as I have already mentioned, is longer than in the acquired variety. Microscopically, no cicatricial formation can be discovered, and only atrophy of the gastric mucosa, more particularly of the glandular tubes, can be seen.

Gastric ulcer has been met with in congenital bilocular stomach, and has been situated at the site of the stricture, but these ulcers are secondary in origin, and are probably produced by the pressure of the food passing through the strictured part of the organ.

As most gastric ulcers develop in the lesser curvature, that type where the sulcus of the stricture runs from the greater curvature to the smaller is by far more frequent. The result is that the stomach is divided into two fairly equal cavities, which communicate at the lesser curvature, diverging from each other toward the greater curvature. The position of the contracting cicatrix will, of course, in many cases divide the stomach unequally, and in several instances the cardiac pouch has been found much larger than the pyloric one; but it is a question in this case whether the stomach is divided into two unequal parts or whether the cardiac pouch has not become dilated by the accumulation of food after stenosis had taken place or for some reason before the cicatrix had formed. In this dilatation, which is such a natural sequence of stricture, and which corresponds so closely with what takes place in stenosis of the pylorus, it is probable that in bilocular stomach the cardiac pouch becomes increased in dimensions by the mechanical dilatation produced by food.

This condition is, however, not always met with, and in the beginning the cardiac pouch will often present a considerable thickening of its muscular coat, due to an hypertrophy from overwork. The explanation is simple: because of the increased difficulty in the passage of the food the cardiac pouch is put upon a strain, and hypertrophy from overwork is the natural outcome. Lunnemann found that the strata of circular muscles measured from two to two and one-half millimeters in thickness, while in the pyloric pouch it measured from only one to one and one-half millimeters. This amount of hypertrophy is absolutely essential to life.

It is worthy of note that the cardiac pouch frequently gives rise to serious trouble, due to a dilatation that results from an atrophy of its walls from inactivity and to muscular insufficiency. In some reported cases it was seen, and could also be demonstrated clinically, that the second stomach was dilated. A classical example is the case reported by Langerhans of a man, forty-seven years old, who had been afflicted with disturbances of the stomach for a number of years. The necropsy showed that the stomach was divided into two pouches, the pyloric pouch being very much larger than the cardiac. Such a marked degree of atrophy can be explained from

the fact that the cicatricial tissue interrupted the vascular and nervous supply of the stomach, the result being that the movement of the muscular coat exhausted itself at the point of cicatricial contraction, and was no longer able to transmit its activity to the second pouch, which produced an atrophy from inactivity, because the food being forced into the second stomach remained in the latter for some time and was the cause of a marked gastrectasis.

The various conditions which occasion the pathologic symptoms are consequently based (1) on the fact that the cardiac stomach is smaller than the pyloric; (2) that the contracting cicatrix draws the greater curvature upward, forcing the cardiac pouch to raise the food to the level of the cicatricial opening, and being much easier exhausted at this high point; (3) that the stomach is in a state of ectasis, and (4) the communication between the pouches is oftentimes reduced to a very narrow canal. In reported cases the lumen of the channel connecting the two pouches has been found to vary from the size of a lead-pencil to an opening sufficiently large to admit the passage of four fingers.

When the lumen of the stenosed part is very small the patient will soon die from inanition, and this condition becomes all the more serious owing to the fact that the pyloric pouch undergoes a torsion on its axis, being partially fixed between the cicatrix and duodenum.

Microscopically the cicatrix of a gastric ulcer which has produced a stenosis of the stomach shows passive changes, distortion of the gland tubes from displacement, as well as active and luxuriant tissue proliferation, which is most pronounced in the immediate vicinity of the cicatricial tissue, but not in the cicatrices themselves. Lunnemann found a considerable increase of glandular bodies, both at the margins of the cicatrix and in more distant parts of the stomach walls where the mucosa was otherwise perfectly normal, in a case of bilocular stomach, and considers this as the expression of the vascular hyperemia due to the ulcerative process. In other cases the mucous membrane has been found normal in the region of the ulcer, excepting in those instances where a carcinomatous infiltration of the tissues was present. The remainder of the gastric mucous membrane in most cases usually reveals the microscopic characters of a glandular gastritis.

Hauser, whose competency in the matter of pathology of the stomach is without question, has had occasion to make microscopic studies of the cicatricial tissue taken from bilocular stom-

achs, and he has found that it is accompanied by an enormous increase and proliferation of the glands of the mucosa which have become contracted, and this extends over the entire cicatrix and somewhat beyond it. A similar growth of glands is also met with in the mucous walls of very extensive chronic gastric ulcer which never completely heals. Beside the luxuriant growth of glands a change in their epithelial lining occurs at the same time, the normal epithelium of the pepsin glands being replaced by either cylindrical or cubical epithelium. From a very careful study Hauser concluded that the luxuriant growth of glandular structures appearing at the time of cicatrization of chronic gastric ulcer is independent of any secretory influence, and that these results arise from the combined effect of an increased supply of nourishment during the process of ulceration and cicatrization, as well as from a disappearance of the inflammatory exudate which surrounds the glands, because by this means the production of the epithelium of the glands is increased and at the same time the physiologic resistance of the neighboring tissue is weakened. The passive torsion of the tubes of the glands contributes toward their increase and development, while the continuation of the growth to an unlimited degree is prevented by the progressive cicatrization and condensation of this tissue, and, finally, the glands disappear. On the other hand, if solid cicatrization does not take place an exuberant glandular growth continues, and the ultimate outcome will be a transformation into carcinoma. Thus, between a carcinomatous change of the epithelium of the glandular elements of the gastric mucosa, as well as an atypical abundant growth of the glands themselves which occurs every time an ulcer of the stomach undergoes cicatrization, there only exists a *difference in degree* and Hauser has proven the well-known clinical fact that a gastric ulcer may and often does transform into carcinoma.

Adhesions with the surrounding viscera are frequently met with in cases of bilocular stomach, and are usually due to the process of cicatrization of a former ulcer of the organ. In some instances they are very extensive and bind the stomach to the liver, pancreas, or the anterior abdominal wall.

When the opening between the two pouches in bilocular stomach is sufficiently large the patient may be free from any symptom of a gastric lesion, and persons may attain quite an advanced age and die from some other cause, so that the pathologic condition is only discovered at autopsy, and it is probable that if all the necropsy

records of the large hospitals throughout the world could be consulted a very considerable number of both congenital and acquired bilocular stomachs could be found. Since a congenital hour-glass stomach predisposes its owner to the development of an ulcer of that organ, it may easily happen that this congenital defect does not present any symptoms in early life, and the patient will only present gastric disorders after an ulcer has formed. Such an instance has been put on record by Sievers in which a patient, twenty-six years of age, had been well up to that time, when a gastric ulcer developed and caused death from perforation.

In those cases where a bilocular stomach has been acquired, symptoms arise which can be clinically divided into two groups. The first are simply those to which a gastric ulcer gives rise; after the lesion has existed for many years, or after several recurrences have taken place, the second group of symptoms appears upon the scene and indicates the presence of bilocular stomach.

These symptoms are especially produced by a retention of the stomach contents, just as in the case of pyloric stenosis. Food, and more especially solids, such as bread and meat, remains lodged in the cardiac pouch, and there produces a sensation of marked distention. After a meal, vomiting may set in immediately, or in other instances it may occur in the early morning before breakfast. Not infrequently the vomitus will be found to contain food which has been taken one or several days before, a significant fact, because it indicates a stenosis somewhere in the stomach, Foul-smelling eructations also occur and simply indicate decomposition of food going on in the stomach. In most cases the appetite remains good, and, as a rule, a liquid diet will not give rise to these symptoms.

The patients suffer from great thirst, and it may also happen that in this stage of the disease hematemesis, which may not have occurred for years, suddenly makes its appearance, in some cases so violently that the patient dies. As the affection progresses, gastric pain becomes unbearable, and for this reason the patients refuse food, the result being that the loss of flesh is great and the patient takes on all the appearance of a malignant cachexia which leads the surgeon to the erroneous diagnosis of malignant disease of the stomach.

A very important symptom is a feeling of fulness in the stomach, even after ingestion of small quantities of food, and this symptom is only relieved after vomiting has occurred. Some patients describe their sensation as if the stomach became contracted, and they may also suffer from pains during peristaltic movements of the organ,

which occur a few hours after digestion, and which may finally become continuous as the affection becomes more marked. This symptom depends upon the condition of the cardiac pouch and of the kind of stenosis present. Beginning atrophy and muscular relaxation of the cardiac pouch give rise to daily vomiting.

Although the present methods of clinical examination have not attained that perfection by which the presence of a bilocular stomach can be made out with any degree of certainty, it is nevertheless possible to diagnose this condition in quite a number of cases if various methods are combined. There is no doubt in my mind but that many diagnoses of dilatation of the stomach from pyloric stenosis, or diverticula of the stomach, or of the esophagus, have been made, when in reality the true condition was a bilocular stomach; and even when the abdomen has been opened this condition may be easily overlooked when the cardiac pouch is small and situated near the diaphragm along with the cicatrix.

Simple inspection of the abdomen will rarely aid us in diagnosis, but we may be able to obtain some idea of the condition if the stomach is artificially inflated. If the abdominal walls are thin and flabby, and if the stenosis is not sufficiently narrow to prevent the passage of gas and water through it, it is easy to make the stenosis plainly visible by inflating the stomach.

It should be borne in mind that in those patients in whom the stenosis is very marked the cardiac pouch alone will become inflated. It may also happen that the gas remaining in the cardiac pouch will show the convexity of the stomach above the umbilicus, but the pyloric portion containing fluid will give rise to a succussion sound below the umbilicus, so that under these circumstances a differential diagnosis must be made between dilatation of the intestine and bilocular stomach. It is also important that the outline of the inflated stomach on the right remains in the median line or somewhat to the left of it, which does not correspond with the position of the pylorus. Peristaltic movements in the gastric region are of no value in the diagnosis of the affection we are considering. By palpation much can be ascertained. The epigastric and umbilical regions are often painful on pressure, and not infrequently a resisting mass can be made out, above which a high-pitch percussion sound may be elicited, while on both sides of this high-pitched area of percussion a tympanitic sound is obtained. In some cases a tumor may be palpated in the left hypochondrium, varying in size from one case to another, having indistinct outlines, and being pain-

ful on pressure. This tumor may be due to cicatricial tissue in the bilocular stomach, or to muscular spasms of the organ.

Much importance has been attributed to the splashing sound which is frequently met with in the region of the umbilicus, but it is in no way characteristic of bilocular stomach, and simply indicates that the organ is dilated. Jaboulay has described a diagnostic sign which is different. In his case the splashing sound continued below the umbilicus after the stomach had been filled with water, while it disappeared in the upper epigastric region—that is to say, in the cardiac pouch. Tympanitic sounds remained in the pyloric pouch, while in the cardiac pouch they became dull. This interesting phenomenon should be carefully looked for, but naturally if taken alone is quite insufficient for a diagnosis.

We should never neglect to try to elicit the splashing sound while the stomach is empty, care being taken to remove all liquid from the organ by the stomach-tube. Now, if this has been done and a splashing sound is obtained, it indicates in all probability that we are dealing with a bilocular stomach, from the fact that the pyloric pouch has not been emptied by the siphon and contains liquids and gas. If a bilocular stomach be washed out, the water which has been introduced may not return, or a lesser amount than what was introduced runs back, a fact which can be easily explained from the liquid in whole or in part passing through the stricture and remaining in the pyloric pouch.

The use of the X-ray has been applied in the diagnosis of gastric diseases, especially by Jaworsky, and by combining the usual methods of examining the stomach he was able to diagnose several cases of bilocular stomach.

The chemistry of the stomach will also aid us in the diagnosis, and should never be neglected, for in the majority of cases examination of the gastric contents showed that there existed entire absence of free hydrochloric acid or only traces of it. The acids of fermentation have been present in some cases. In cases where the gastric ulcer which had given rise to bilocular stomach was comparatively recent there was hyperacidity of the gastric contents. The absence of free hydrochloric acid and the presence of the acids of fermentation, in the majority of cases of bilocular stomach, is to be explained by the existence of a chronic gastritis. This very circumstance is rather surprising if one accepts the usual views held forth, that hyperacidity is an important factor in the formation of ulcerative processes of the stomach. It may be that the absence of free hydro-

chloric acid, with the presence of the acids of fermentation, will greatly aid in the diagnosis of bilocular stomach; but on this point more researches will have to be made, and at present it cannot be said to be of positive value.

As to the differential diagnosis, stenosis of the duodenum should be considered. The duodenum above the stenosis is frequently dilated to such an enormous degree that it may resemble a second stomach. This dilatation may in some instances be diagnosed before opening the abdomen, particularly in those cases where bile and pancreatic juice can be demonstrated in the gastric contents. In stenosis of the duodenum the pylorus may still carry on its normal functions, in which case the pylorus represents the orifice between the stomach and the duodenum, which on superficial examination may have all the appearances of a bilocular stomach. When there is pyloric insufficiency the stomach and duodenum form one vast pouch.

When the stenosis is limited and does not cause any marked impediment to the onward progress of food, the prognosis of bilocular stomach cannot be said to be serious, but in all cases where the stenosis is marked the outlook for the patient is most unfavorable unless an operation is undertaken. Death will occur when the stenosis has arrived at such a degree that a torsion on its axis takes place. From what I have already said there are quite a number of cases of bilocular stomach which never receive medical or surgical treatment during life, for the simple reason that a correct diagnosis has not been made, but as soon as the condition produces symptoms the only proper treatment is operative. The same indications apply to bilocular stomach as to gastric ulcer or carcinoma of the stomach, either for their radical cure or to alleviate the complications to which these various lesions give rise.

An operation should be undertaken when a patient presents continued pain, repeated vomiting, and other dyspeptic disturbances, or when symptoms such as increasing emaciation and cachexia make their appearance. Several operations have been recommended and performed for the relief of bilocular stomach or its cure. In the first place, a resection of the stricture with suture of the two pouches has been recommended, the new opening thus obtained being sufficiently large to allow the easy onward progression of food. Along with resection, gastrorrhaphy may possibly be indicated if there is a very considerable degree of dilatation of the organ. A gastroplastic operation, performed identically in the same manner as the Heinecke-

Mikulicz operation for stenosis of the pylorus, has given a number of very gratifying results. Gastrogastrostomy is also indicated, and consists in making a free anastomosis between the cardiac and pyloric pouch immediately under the stenosis without dealing with the latter. Gastrojejunostomy and gastroduodenostomy have also their indications, as well as operative and non-operative gastrolysis, the latter operation being only indicated when the symptoms accompanying bilocular stomach are chiefly due to extensive perigastric adhesions, the stenosis being sufficiently patent as not to interfere with the process of digestion. Digital dilatation, as recommended by Loreta for stenosis of the pylorus, has been done at least on one occasion, some years ago, but would appear to be a useless and irrational mode of treatment.

Regarding indications for the various operative procedures already mentioned, I would say that the surgeon must not only be guided by the simplicity, security, and speed of the operation and the favorable results obtained, but he must also take into consideration the given case, as the anatomic changes vary tremendously from one case to another; and what I have already remarked in discussing the indications for operative treatment of carcinoma of the stomach, at the annual meeting of the Massachusetts Medical Society last June, will certainly apply to the operative treatment of bilocular stomach, namely, that *no operation can be decided upon before the abdomen has been opened and the condition of affairs thoroughly ascertained, and it is only after the surgeon has become perfectly familiar with the anatomic conditions present that he may select the operation the most applicable under the given circumstances.*

Take, for example, a case where a large area of the walls of the stomach has become bound down to the pancreas, the liver, spleen, or other viscera, it is very evident that a dissection of the stenosis would be impracticable, and, to say the least, a most dangerous proceeding. Excision of the entire stricture followed by gastrorrhaphy can only be undertaken in very rare cases, and, so far as I am aware, no operator has up to the present time performed it for the cure of bilocular stomach, because this method is more complicated than the others and promises no better results. Gastroplastic operations are not to be undertaken if the cicatrix at the pylorus or in the middle of the stomach is very extensive, or if the greater part of the mucosa is ulcerated or has undergone cicatricial changes so that the sutures would not hold. If, however, the stenosed portion of the organ is small and movable, so that it can be resected, and if after this has

been done there still remains enough normal stomach wall at the point of the resection to effect a communication by means of a Heinecke-Mikulicz operation, the result will be extremely gratifying if the cardiac pouch has not undergone too great a degree of atrophy. I am very well aware that there are some operators who have had poor results from this operation in bilocular stomach, but I nevertheless must confess that my experience with it in the case appended at the end of this paper has been most gratifying.

I presume that, taking all things into consideration, the most generally applicable procedure, at least in a large majority of cases, is gastroanastomosis according to Doyen's or Woelfer's methods. By these operations two very important points are gained, first, a wide communication between the cardiac and the pyloric pouches, and, secondly, the dilated cardiac pouch is relieved of its very difficult part of propelling the stomach contents forward, because the fact that the anastomosis is situated low down renders the onward progress of the chyme easy. Gastroanastomosis is, I believe, indicated in all difficult cases of bilocular stomach, especially when the stenosis is long and narrow, and where cicatricial atrophy of the cardiac pouch has occurred, and where there are a large number of adhesions. Compared with resection, gastroanastomosis is superior in that it can be more rapidly performed, and compared with gastroenterostomy it is, I believe, a more perfect operation, because it re-establishes the stomachal digestion in its entirety. Compared with a gastroplastic operation, it is more advantageous in that it creates a wider communication between the two pouches, and in that the operation is not performed at the site of the cicatricial tissue. The peristaltic movements of both pouches are brought into more intimate relation, and, what should be particularly borne in mind, the value of gastroanastomosis increases the nearer the stenosis is to the cardia, because resection of the stomach and gastroenterostomy cannot be carried out so easily when the conditions are such as those just named.

As every other operation, gastroanastomosis has its limits of application. It cannot be undertaken in those cases where the pyloric pouch is so small that an opening cannot be made in absolutely sound tissue—that is to say, at a sufficient distance from the stenosis.

In all cases where the proper conditions for the performance of the first three methods described are not present, or where the stenosis is embedded in adhesions binding it to the surrounding

parts, gastrojejunostomy is indicated, principally because the area of cicatricial tissue is entirely avoided during the operation. Gastroduodenostomy is not a procedure that I believe can ever take the place of gastrojejunostomy in cases where the adhesions are thick and strong, because the duodenum and its mesentery are bound down posteriorly; but when the descending portion of the duodenum and the cardiac pouch of the stomach can be easily approximated, then I think that gastroduodenostomy is the operation of choice, and far superior to any other.

Operative and unoperative gastrolysis have occasionally their indications. Operative gastrolysis should be carried out in such a manner that after the adhesions between the stomach and the adjacent organs have been broken down no raw surface should remain, and for this reason, in order to have a successful result, I believe that all adhesions should be tied off close to their base between two catgut ligatures, and as much of the tissue should be resected as is possible. The use of the thermocautery in breaking up lesions and for the prevention of their recurrence is, I think, to be condemned.

Non-operative gastrolysis consists in frequently inflating the stomach, the object in view being to stretch or tear fresh adhesions that are formed between the stomach and the neighboring organs. This treatment has given one or two good results in cases where it was tried, and may be resorted to when indications for its use are present.

CASE I.—A female, aged forty-nine years, a cook by occupation, applied at my clinic at the Tremont Dispensary in October, 1900, with the following history: no hereditary affection could be discovered. At the age of twenty years she began to work as cook, and a few years later developed what in all probability was a severe chlorosis. After a prolonged treatment the patient's health began to improve, and she remained fairly well for a year or two, when, at the age of twenty-eight years, she began to present gastric disturbances. These symptoms consisted in severe pain in the region of the stomach, particularly after the ingestion of solid food. This was followed by vomiting, the vomitus sometimes containing blood, but we could not discover in the patient's history any distinct description of a true hematemesis.

According to the patient's story, she suffered from her stomach off and on until the age of thirty-six or seven years, since which time the severe pain and vomiting have been almost completely absent,

but within the last year another set of gastric symptoms has begun. At present the patient cannot retain any food. After each meal, within an hour or two, she complains of a heavy feeling in the epigastrium, and suddenly, after a minute or two of sharp pain, her food will be vomited spontaneously. The vomiting is really more like a regurgitation. As the patient had not retained much food during the last three months, she was extremely weak and emaciated. She had a straw-yellow color of the integuments, and with her drawn features presented to all outward appearances a subject in an advanced condition of carcinomatous cachexia. Her normal body weight had been about 150 pounds, but the patient stated that in the last three months she had lost thirty-seven pounds. Her tongue was coated with a white fur, the mucous membrane of the mouth was dry, and the patient was troubled with a constant thirst. A marked constipation had existed for many years. Appetite is poor. Sleeps fairly good. The patient is not troubled with headaches.

On inspection nothing special was noted. Palpation of the stomach in an empty condition gave rise to considerable pain. Insufflation of the stomach showed that the lower limits of the organ extended to the umbilicus. The distention caused great pain. By palpation I thought that I could make out a distinct mass situated in the middle of a line drawn from the umbilicus and right costal arch, consequently in the region of the gall-bladder.

The patient was ordered a test breakfast which showed free hydrochloric acid in the gastric contents, with an absence of lactic or other acids of fermentation. Blood-examination showed hemoglobin, 7 per cent.; polynuclears, 77 per cent.; mononuclears, 22 per cent.; eosinophiles, 1 per cent.; no leukocytosis.

I endeavored to ascertain if Jaboulay's sign could be obtained in this case, but it was absent, and my diagnosis wavered between a bilocular stomach, of which from my examination I had no evidence, and carcinoma of the stomach arising from a former gastric ulcer. The patient was advised to submit to an early operation, which was performed a few days later.

After the abdomen was opened in the median line it was found that the stomach was bound by a large number of adhesions to the omentum and transverse colon, while the pylorus was bound down to the gall-bladder; after carefully freeing the organ from the omentum, colon, and gall-bladder it was found to be a bilocular stomach, the cardiac pouch being about twice as large as the pyloric.

The connecting stenosed canal was extremely thick and hard. From the conditions present I decided that a gastroplastic operation was naturally out of the question, and that resection, followed by gastrorrhaphy, was inapplicable on account of the unequal dimensions of the pouches, and also because of the apparent atrophy of the stomach walls, which probably would not allow the sutures to hold. Gastrogastrostomy was for the same reasons to be rejected. The omentum minus was torn through and a loop of jejunum was seized and sutured to the posterior wall of the stomach—in other words, a posterior gastroenterostomy was done, Doyen's method having been found impracticable in this case. The opening between the stomach and the intestine was about four centimeters long, the anastomosis being done with three layers of sutures of fine celluloid thread. The omentum minus was closed with fine catgut, and the abdominal wound closed by two layers of catgut for peritoneum and fascia, with silkworm-gut for the skin. In the evening the temperature was 39° C., pulse 100. The patient had vomited little since the operation, and had voided about 200 c.cm. of urine.

To make the history of this case short, I would say that the patient made a very good though slow convalescence, being discharged about nine weeks later in a satisfactory condition.

I saw this patient six months after the operation, at which time she had gained eighteen pounds in weight and was beginning to have a fairly good digestion, most functional disturbances of the stomach having disappeared. She was still constipated, requiring nightly medicine in order to procure a movement on the following day.

The following case has already been published in the *New York Medical Journal*, December 9, 1899, but I will reproduce it on this occasion in order to make this paper more complete.

Case II.—Female, aged forty-seven years, was first seen in March, 1898. At that time she was complaining of a severe pain in the right side and in the epigastric region, and of occasional vomiting after eating. The patient was a thin, anemic subject, in a rather despondent condition of mind. Examination revealed what was believed to be a dilated stomach in a state of ptosis and a movable right kidney. On the supposition that this was a case of gastroptosis and gastrectasis, the symptoms of which were exaggerated by the presence of a very movable kidney, nephropexy was performed a few weeks later, with the result that the pain in the right side was completely relieved, but the digestive symptoms continued quite as before.

In November, 1898, the patient was again seen, complaining of her stomach, and a more careful history of the digestive disturbances was obtained, a thing that should have been done in the first place, as the symptoms were far too marked to have been neglected as they were.

At the age of seventeen the patient had typhoid fever, and had suffered ever since from what she called indigestion; but at about the age of twenty-six attacks of pain in the epigastric region and vomiting began to occur, and have been more or less constantly present ever since. The attacks of gastric pain occur more especially after a hearty meal, excessive bodily exercise, or mental fatigue, but at no time was any blood vomited or passed *per rectum*. The menses have always been regular and painless. Chronic constipation of severe grade has been present for many years, and the patient has frequent attacks of frontal neuralgia. The heart and lungs are normal. Analysis of the urine gave the following results: specific gravity, 1016; total amount in twenty-four hours, 1200 cubic centimeters; color, pale; reaction, slightly acid; urea, 25.5 grams to the liter. No albumin or sugar. Abdominal viscera, excepting the stomach, in apparently normal condition.

I would here remark that the patient's father died at the age of fifty-one of some obscure stomach trouble, from which he had suffered for many years.

A dilated stomach had been diagnosed when the patient was first seen, but we now suspected that the gastrectasis was quite probably due to a benign, or perhaps malignant, stricture of the pylorus, because by palpation a somewhat painful mass could be detected in the left hypochondriac region, which had not been noticed when the patient was examined in March. The splashing sound could be elicited, but auscultation over the back when the patient swallowed water only showed the characteristic normal *glou-glou* sound. When the stomach had been moderately distended with CO_2 its lower border was found at about a finger-breadth below the umbilicus. The lower half of the abdomen was retracted.

The vomitus obtained during an attack of pain was a yellow mucus with a decided acid reaction. The stomach was irrigated and a test breakfast, consisting of a cup of tea, one egg, and a roll, was ordered, and the stomach contents were withdrawn two hours later. They were found to be composed of fluid containing about twenty-five cubic centimeters of the roll. After filtering the analysis showed a considerable amount of free hydrochloric acid and a complete absence of lactic acid.

An exploratory incision was advised and accepted. The stomach was irrigated morning and evening with 1 : 1000 solution of naphthol B for one week prior to the operation, which was done on December 2, 1898. An incision twelve centimeters long was made, beginning at the outer border of the rectus muscle, midway between the tip of the sternum and the umbilicus, and was carried obliquely downward on the left side. When the abdominal cavity was exposed the pylorus was examined and found perfectly normal. At about the junction of the lower with the middle third of the lesser curve of the stomach was found a strictured portion uniting a normal lower third with a dilated upper two-thirds of the viscus. The strictured portion was about seven centimeters wide and three centimeters long, and was united to the surrounding structures by a few tough adhesions. These were broken down by the finger and a few snips of the scissors and the part liberated.

After the stomach had been well drawn out through the abdominal opening, an incision was made on the anterior aspect of the viscus in the longitudinal axis of the strictured portion. The stenosed portion would allow the passage of three fingers. The incision was continued upward and downward for about four centimeters, and when completed measured about eleven centimeters. A Heinecke-Mikulicz plastic operation, as devised for the pylorus, was done, and when completed the line of union was about eleven centimeters long.

The borders were brought together by fourteen interrupted fine silk sutures, which were passed through the stomach wall, but *did not include the mucosa or the peritoneum.* The silk sutures were covered by bringing the peritoneum together with a Lembert's suture of fine catgut. The peritoneum, fascia, and muscles were sutured with fine catgut, the skin and fat being united with aluminum and bronze wire.

The after-treatment was simple, and recovery was remarkably rapid. On the afternoon and evening following the operation the patient vomited clots of partially digested blood. The next morning she was feeling well; temperature, 100.4° F.; pulse, 92. Vomiting of blood occurred in the afternoon, but the quantity voided was small.

On the third morning following the operation the patient, who had been fed by enemata, was allowed to have champagne and crushed ice by teaspoonful every hour. Feeding *per os* was begun on the sixth day, and gradually solid food was substituted for a

liquid diet, so that just three weeks after the operation the patient was taking meat. The patient was discharged well on January 10, 1899.

I saw the patient this summer (1901), and found that she has remained in excellent health and that the functions of her stomach are apparently perfect.

DISCUSSION.

Dr. N. Stone Scott, of Cleveland, Ohio.—I consider this paper a valuable one, and only regret we have not time to discuss it thoroughly. I shall simply refer hastily to two or three points which have been suggested.

The etiology of hour-glass stomach and contraction at the pylorus is probably the same. In my own experience I have seen examples of both. I remember one hour-glass stomach which was undoubtedly of malignant origin, have also seen cases of stenosis of the pylorus of syphilitic origin, and have a case in mind now which was probably tubercular.

The essayist spoke of early operation. The question of stomach surgery is new; it is newer than the surgery of the appendix. The fight has been almost won in the appendix field, but it is just coming on in the stomach field. It is on, and I think that we shall win here just as great reputation and as glorious victories as have been won in operating for appendicitis. Stomach surgery is undertaken for two widely differing conditions, malignant and non-malignant. The first cases operated in this line of work were for malignant disease. They were not very successful operations, nor are they very successful yet. Operations for the complete removal of the stomach are, and ought to be, great rarities. They are show cases. But good, substantial work is to be done in non-malignant disease of this organ, and it is here that we shall get our results. The results the doctor has barely intimated. Of course, they are better in the cases treated early, but they are very flattering in all stomach cases of the non-malignant type. The ordinary country practitioner who graduated ten years ago knows little or nothing of this work unless he has kept up with the times—and many of them have not kept up with the times. It is not strange, then, that the laity look upon the stomach operation as an ordeal terrible to contemplate. The results in the class of cases under discussion have been very good. But this work is not yet thoroughly understood. I am hardly clear in my own mind as to its limitations; Keen has estimated the mortality in non-malignant cases at 10 per

cent. In uncomplicated non-malignant cases this death-rate is certainly too high.

A word in regard to the diagnosis. Both diagnosis and prognosis are points of great importance. Unfortunately the early differentiation of the malignant and non-malignant types is as difficult as it is necessary.

The ordinary practitioner considers the case a medical one at least until dilatation has taken place. Let me say to you that many patients die before the stage of dilatation is reached. These should be operated. They are surgical cases. I reported a case two years ago before the Ohio State Medical Society in which I had a stricture of the pylorus to deal with. I did a gastroenterostomy, which was followed by an excellent result, but there was never dilatation of the stomach so far as I was able to determine. There was more or less hypertrophy, but the case had not reached the stage of dilatation. That patient would have died in a few weeks if she had not been operated.

In hour-glass contraction we are less likely to get dilatation, or, if we do get it, it is apt to be overlooked owing to the fact that only a small portion of the stomach is dilated. There is one point that has not been brought out which should be borne in mind in the examination of the cases, that is, where we have a patient whose stomach pouches well out in the left side and does not come out in the median line or right side, he has then possibly a dilatation of the cardiac end of the stomach, and possibly an hour-glass contraction.

We cannot enter into the question of the examination of the contents of the stomach, the physical examination, and all those questions which are of great importance, and very interesting as well, because most of them belong to other departments rather than to the surgical treatment. However, we must be acquainted with them in order to be prepared for our surgical work.

I have nothing to say about methods of operation on account of the short time at our disposal. There is nothing very special with reference to the stomach surgery of hour-glass contraction over that of the stomach surgery of pyloric stenosis, except that once in a while we get a case that is favorable for anastomosis between one part of the stomach and another, or we can afford relief by an operation which involves cutting a stricture between two points of the stomach and enlarging the stomach at that point.

The essayist spoke of irrigating the stomach prior to operation; my own experience in that regard corresponds with his. In the first few cases in which I tried to irrigate the stomach I had a good deal of trouble, and I think it is unnecessary. I have not irrigated the stomach prior to operation for years. I do not use the Murphy but-

ton in the non-malignant cases; but if I have a bad malignant case, and emaciation and cachexia are marked, I use it. I do not think its use is necessary in non-malignant cases. In order to overcome shock I put a stomach tube into the intestine and fill the intestine with normal salt solution full, and it is surprising how little shock occurs after these operations.

DR. A. GOLDSPOHN, of Chicago, Ill.—In the first one of Dr. Cumston's cases of gastroenterostomy he did not make a secondary anastomosis between the afferent and efferent loops of the small intestine. This is regarded as the normal thing to do by very many operators in order to prevent the regurgitation of liquids from the duodenum into the stomach, which is troublesome in many cases. I would ask him how much of that he had in his case.

In regard to the celluloid thread of Pagenstecher: I bought a quantity of it when I was abroad two years ago, but I have not used very much of it. It is nice and smooth to work with. Its principal advantage is that it has less capillary attraction than silk, but the difference is not as much as I had hoped. I use it, as Dr. Cumston does, for intestinal work in place of silk. But so far as sterilizing it is concerned, he incidentally mentioned dry sterilization, which is far inferior to boiling and steaming. There is no efficiency in dry-air sterilization unless we use heat of nearly 300° F. for several hours; and whether that or any fabric like it will stand such intense heat without detriment to it, I very much question. The great and superior factor for sterilizing material of that kind is a combination of water moisture with heat, and then we need only 212° F.

DR. SCOTT.—I would like to ask the essayist if he closes up the pylorus in cases of stomach surgery. I think if we get regurgitation of bile it is well to close the stomach, and we ought to do enteroanastomosis in these cases as a rule.

DR. L. B. TUCKERMAN, of Cleveland, Ohio (by invitation).—I am not a member of your Association, but I thank you for the courtesy of asking me to say a few words on this subject. As I have only performed one gastroenterostomy I am not entitled to an authoritative opinion in the matter, except that my case was a vindication of what Dr. Scott has said, namely, that instead of dilatation there was hypertrophy. In attempting to bring a portion of the stomach out of the wound we tore the peritoneum of the stomach. The woman had not been able to eat a meal for two years, and she was *in extremis*. The woman made a complete recovery from the operation. There was a rapid gain in weight. The operation was done eighteen months ago. I have not heard from her for the last six months, but at that time she weighed forty-eight pounds more than she did at the time of the operation.

DR. CUMSTON (closing the discussion).—I have very little to say. In reply to the question of Dr. Scott, I have never closed the pylorus.

With reference to the remarks of Dr. Goldspohn, I feared the vicious circle, but she has never had it, and I am thankful for it, for I expected she would have it. In another case, I think I should do the operation recommended by Dr. Goldspohn to prevent the vicious circle from becoming established.

As to celluloid thread, I always boil it. Boiling is the proper thing for any ligature. As to its capillary attraction, it is said to be greater than silk. It has great tensile strength.

Regarding the surgery of the stomach, I want to go on record as saying, that in every case in which stomach symptoms are manifested, and the patient is beginning to lose weight, and if by judiciously applied local treatment the weight of the patient cannot be brought to its normal standard and remain there—in every one of these cases, no matter what the gastric analyses may give you, they deserve, and should receive, an exploratory operation. In a number of cases of carcinoma of the stomach, in the early stage there is no dilatation of the organ, and that is the time we can do brilliant stomach surgery. When we reach the stage of dilatation the growth has probably arrived at the inoperable period.

We must approach these cases in two ways: either relieve the patient of the symptoms or relieve him of his carcinoma. Total resection of the stomach is unnecessary if we see the cases in time. An error which most surgeons have made, and which has had some effect on the minds of the general practitioner, has been that they have said before opening the abdomen what operation they were to do. Now, there is no man living, in my opinion, who knows what he is going to do with the stomach before he enters the abdominal cavity. We cannot ascertain what the local conditions really are, no matter what clinical examination we may employ, and we will never know until we examine the stomach with the hand exactly what we can do, and give the patient a chance. A small exploratory incision is not going to do any harm even if nothing radical can be done, and is, in my opinion, more than justifiable.

PERSONAL EXPERIENCE WITH UTERINE FIBROMYOMATA.

By HENRY D. INGRAHAM, M.D.,
BUFFALO.

I CAN expect to say little if anything new upon a subject that has been given as much attention as fibromyomata of the uterus. Yet I think that two of the cases that are briefly reported have more than a passing interest. It is not within the scope of this paper to attempt either to give the cause of these neoplasms, to describe the several varieties, or to enumerate the symptoms accompanying each variety. All that is attempted is a brief description of the few cases mentioned. It was not so many years ago that nearly every practitioner thought that a uterine fibroid was a harmless growth and the best thing to do for it was to let it alone, unless hemorrhage was troublesome, then ergot or various other styptics were to be used. I am afraid that this is still the opinion of too large a proportion of physicians. When I first began to treat these neoplasms ergot was used hypodermically to dispel the growths, and with others I used it quite faithfully in several cases without any benefit, except a few times, to check the excessive flow. Then electricity came into use, chiefly through the advocacy of Apostoli, and that was tried by many, the writer being among the number. I visited Apostoli, saw his methods and his results. Although I was not as enthusiastic in its use after visiting his clinic, yet I continued to use it, with the result of checking the hemorrhages in some cases, of occasionally checking the growth of the tumor for the time being, and of reducing the size of the growth in two cases. In one of the latter the benefit was permanent; in the others the patients became as bad or even worse after the electricity was discontinued, and most of them have since been operated upon. I am not aware that I ever did any harm with the electrical treatment, except to postpone an operation that should have been done earlier, because it would then have been

easier for the operator and safer for the patient. None of those whom I operated upon after the use of electricity died as the result of the operation. One, however, upon whom I had used electricity died as the result of the removal of the growth by a most competent surgeon. I am sure her chance of recovery when I first saw her would have been much better, but she would not listen to any suggestion of an operation until her condition became serious. I think the reason I did no more harm with the electrical treatment was because I examined every case very carefully and never used it on a soft or very rapidly growing tumor nor on a subperitoneal one. Possibly, if used on the latter, it would do no harm, but it certainly would do no good. In the two former varieties it is harmful and dangerous and should never be used.

I believe that in all cases of uterine fibroids a very careful examination of the pelvic cavity should be made. The bowels and bladder should be empty, and a thorough examination made with one or more fingers of one hand in the vagina or rectum. The examination by the rectum should never be omitted, although it frequently is. An anesthetic should be given, if necessary. A careful history of the condition of the patient for several years past should be obtained, and the changes in the growth carefully noted. I am well aware that the above advice is entirely unnecessary as far as the members of this Association are concerned, but many general practitioners make a superficial examination and then give a prognosis that is not warranted by the patient's condition.

In years past I have cureted the fibroid uterus several times for menorrhagia, usually when the neoplasm was of the interstitial variety. In a few cases where the growth was not interstitial, but was hard, dense, and firm, the hemorrhage was controlled for a time, and no bad results followed; yet I consider it a dangerous procedure, fully as dangerous as hysterectomy.

In one case of curetage, that of an unmarried woman, thirty-five years old, who had always been in good health and had never experienced any trouble from the tumor except the gradually increasing hemorrhage at each monthly period, the growth, which was a small interstitial one, entirely disappeared within five or six months after the cureting. I also have seen one larger than this, of the intramural variety, disappear spontaneously. The tubes and ovaries have been removed three times by me for the relief of these growths. In two cases the relief was not marked, and in the third case the patient died from septic peritonitis, although the operation

was an easy one and every effort to secure cleanliness was made. I never expect to resort to this operation again for the relief of any symptoms connected with these growths. One case in which I did a hysterectomy several years ago had a large pus tube on the left side. The tumor was a large one, weighing thirty-five pounds, and had grown quite rapidly for the last ten years. The patient was a nun, forty-two years old, and had experienced pelvic pain, leucorrhea, menorrhagia, constipation, and more or less vesical irritation for twenty years past. During the two years before operation all the symptoms had increased and the tumor was growing much more rapidly than formerly. This is the only case in which I have ever found a pus tube of any size complicating a fibroid. I have seen seven cases of pregnancy complicated by fibroids large enough and situated so as to give trouble of themselves. In five cases miscarriages occurred spontaneously; in one a miscarriage was brought on; in the remaining case the uterus was removed.

In one case the woman went to six and one-half months before miscarriage occurred. The child was well formed, but thin and poorly nourished. The tumor was said to have been firm and solid, but during pregnancy it grew rapidly and became fibrocystic, with but little fibroid tissue except at the lower and posterior portion of the growth, as was learned a month or so after the miscarriage, when the tumor was successfully removed. I first saw this case two weeks before the expulsion of the fetus, and it was not an easy matter to tell whether or not pregnancy existed. The patient's physician, a very competent man, would not believe it did exist until labor pains came on. The pains were feeble and the labor prolonged. It was the patient's first and only pregnancy.

In the other cases miscarriage occurred earlier and with no especially unpleasant symptoms. All the cases except one I was able to keep under observation, and in none of them did the tumor atrophy or become absorbed. In two of them I did hysterectomy later and the patients recovered.

Mrs. C., who was four and one-half months pregnant, upon whom I did a hysterectomy, was born in Sweden, and was thirty-eight years old; menstruated first at fifteen, always regular, and flow normal; married at the age of twenty-four; had one child two years later, and one miscarriage three years after birth of child. Always well until the past six months, when she began to feel poorly; said there was a sense of fulness in the pelvis; bowels constipated, and slight vesical disturbance. The symptoms had increased rapidly for the

past two or three months, yet she had not consulted a physician until about a week before I saw her, when she called upon Dr. John M. Brooks, of Jamestown, N. Y., who sent her to me. I found the pelvis almost completely filled with a dense, firm, globular mass extending down and within about two and one-half inches of the external parts posteriorly and resting on the pubis anteriorly. It could not be pushed upward nor moved to any extent. The os uteri could not be felt. It was difficult to pass a finger up the rectum behind the growth. I was unable to feel the motion of the child or detect the sounds of the fetal heart, yet a diagnosis of a fibroid in the lower portion of the uterus, complicated by pregnancy, was made. Very active cathartics were necessary to move the bowels. It was decided to remove the growth, and an abdominal hysterectomy was done. No serious difficulty was encountered, except the profuse bleeding toward the close of the operation. It was difficult to ligate the uterine arteries *in situ*, and every little capillary was very much enlarged and bled profusely. When caught by the forceps the blades would tear the tissues, and the bleeding would be greater than from the original source. Finally, I removed the growth as quickly as possible, and my assistant, Dr. Carro J. Cummings, grasped the larger bleeding vessels in her fingers. They were quickly ligated and the bleeding stopped. The patient made an uneventful recovery, and has been in good health ever since, now two years. Photographs of the growth show the condition more clearly, perhaps, than does the description.

Another case—and this is the last one which I shall report—occurred in a woman whom I had known for several years, but never attended professionally until recently. Miss C., aged sixty-nine years, began to menstruate at fourteen years of age; always regular and flow normal, except quite painful the first day, gradually diminishing the second day, when the pain usually ceased, although the flow lasted two or three days longer. Menopause occurred at the age of fifty-two. After that, about once in two or three years, she would flow three or four days, sometimes profusely if over-fatigued or suffering from any great mental strain. Aside from this her health was good. Four years ago, after having passed through a great mental strain for several months, she had an attack of severe pain in her head, followed in a few days by almost complete paralysis of the right side of the body and complete anesthesia of that side. During this time she was unable to recognize the different members of her family, although the power of speech was not en-

tirely gone. This condition lasted two weeks, when the patient began slowly to improve. It was, however, several weeks before she could walk across the room, or before her mind regained its normal condition. At this time no growth was discovered in the pelvis; none was thought of or looked for by the attending physicians, as there were no symptoms indicating any pelvic trouble except the occasional flow. The patient finally partially recovered her health. About two years after this attack she flowed quite profusely for five or six days, and soon after, upon examination, I found a nodular, irregular enlargement of the uterus about the size of the fetal head, extending farther to the right than to the left side. As it did not give much trouble, it was thought best to let it alone, the patient's general health being poor. Neither her health nor the growth changed much, although upon two occasions she lost a little blood, flowing slightly three or four days each time.

In August, 1900, she had another attack similar to the one three years previously, and it came on in the same manner. At first the patient had pain in the head for several days, gradually growing worse, until it was very severe; could only speak in monosyllables; failed to recognize her friends, but was not paralyzed as before, nor was there anesthesia of any part of the body. As previously, about two weeks elapsed before she began to recognize her friends. Her improvement was gradual, but slower than after previous attack. After this illness the uterine fibroid began to grow more rapidly, until now it has reached an enormous size. The patient can walk but little because she is weak and anemic. She can sit down, but cannot sit upright; she has to lean back against something, on account of the large size of the growth in front. As far as could be discovered the growth was as hard and firm five months ago as ever, but since then it has been getting softer, until at the present time it has become quite cystic. Six weeks ago, while sitting in a chair and feeling as well as she had in some time, she suddenly felt dizzy and fell to the floor. She did not lose consciousness or fail to recognize her family. She was, however, confined to her bed most of the time for a month; some headache, but more of a fulness and pressure in the head, accompanied with dizziness and poor appetite, but no rise in either temperature or pulse. Upon the two previous occasions there was a rise of temperature up to 101° F. and the pulse to 96 during the height of the attacks. She is not as well now as before the fall.

It has been a question if some particles of the disintegrating tumor

FIG. 1.

Posterior view.

FIG. 2.

Lateral view.

FIG. 3.

Pregnant uterus with fibroid in lower segment.
Tumor and uterus incised.

have not been carried through the circulation to the brain, causing a septic infection or obstructing the circulation in a portion of the brain and producing these conditions. I am inclined to think so, because in no other way can I account for these attacks. At present her existence is much like a living death, if there can be such a condition, yet it is doubtful if she could survive an operation.

Doubtless an operation should have been resorted to when I first saw the patient; yet her general health at the time was such that it did not seem that she could survive one. Yet if the trouble in her head were in any way due to the fibroid the removal would give her a chance for improvement and the only chance she could have. The same reasoning holds good now, and should the patient become as well as before the last relapse I think an operation should be attempted.

From my experience with the above cases and others similar I conclude that the use of ergot or hydrastis sometimes helps to control the excessive flow. Oftener neither one alone nor both combined have any effect whatever. I have had better results in checking the hemorrhage with stypticin given freely than with any other drugs. Just how it acts I do not pretend to say. Although I have employed both thyroid extract and the desiccated mammary gland, not enough benefit was derived to compensate for the danger attending their use.

In fact, if fibroids are troublesome I have never obtained much, if any, benefit from the use of drugs except to relieve the complications which occur.

Although I have used the curet with fair success in checking hemorrhages, yet I consider it a dangerous remedy. It will in most cases check the hemorrhage, at least temporarily, but it may depress too far the nutrition of the tumor and open up a way by which organisms may find access to its substance, with all the increased risks which this implies.

Electricity, if properly used, is doubtless a safe remedy, but of little value except to check hemorrhage. And when hemorrhage needs any treatment at all it needs more than palliative treatment.

When pregnancy occurs, and a large, rapidly growing fibroid is situated below the fetus in the pelvis and nearly filling that cavity, I know of nothing to do except to perform hysterectomy.

I believe that fibromyomata, although considered benign in contrast to malignant growths such as carcinoma, are by no means harmless, but expose the patient to great and increasing risk—fre-

quently risk of life, partly due to their own inherent conditions and partly to the complications which may arise. All cases of fibroids should be carefully watched; if they are not giving any trouble nor increasing in size, let them alone, but continue to keep the patient under observation. If they do occasion trouble to any extent, which is gradually getting worse, or if the growth is increasing in size, then the proper thing to do is to remove it before dangerous complications occur. If there be adhesions or necrosis of the tumor or pyosalpinx, then the danger of the operation is greatly increased.

If cardiac disease or hydronephrosis results as a complication, the removal of the tumor does not relieve these conditions. Waiting for the menopause to relieve the diseased condition is often like holding out false hopes to the patient, as the trouble may become worse than before, or it may develop after that period, as shown by the last case mentioned.

If any treatment is necessary and the patient is in suitable condition, then a radical operation should be done. There is no excuse whatever for palliative or temporizing treatment at the present day.

DISCUSSION.

Dr. Edwin Walker, of Evansville, Ind.—Mr. President: Owing to the lateness of the hour, I will not make any extended remarks. I think the essayist has covered the essential points in his general method of treating these cases, and it meets with my approval. He has left very little for me to add. The so-called tinkering treatment and the use of the curet in these cases should be discouraged, and should only be employed by thoroughly skilled surgeons. I have in several instances had to remove fibroids because they became infected by the use of the curet. I do not fear the use of the curet in cases where every possible precaution is taken; but, as a rule, I think it is better not to interfere unless we are going to do a radical operation.

I have used galvanism to control hemorrhages in a few of these cases where there were contraindications to radical operation, but would not use it where I thought good, clean surgery would meet the case.

In regard to the last case reported by the essayist, it is highly probable that either embolism or cerebral hemorrhage was the cause of the symptoms. I remember once seeing a case of osteosarcoma of the thigh in which a thrombus was loosened, and the patient suffered from such symptoms, and I think it is possible that may have been a factor in the case reported.

In all cases of fibroids that have to be operated on at all, the operation should be quite radical. However, in cases in which there is a number of separate fibroids, I prefer to enucleate them and not do a hysterectomy. I have removed as many as eight fibroids from one uterus, with excellent recovery; the patient was young, and has borne one child since.

DR. F. F. SIMPSON, of Pittsburg, Pa.—As the hour is getting so late, and the subject has been so thoroughly gone over by the essayist, I have very little to say. I do not recall hearing the essayist say anything with reference to myomectomy. Recently we have been doing that operation in a number of cases, and we have found it quite as safe and as satisfactory as any other operative procedure. Of course, it has its limitations. In unmarried women it should be done wherever possible.

DR. EDWARD J. ILL, of Newark, N. J.—The first case related by Dr. Ingraham was of very great interest to me. I have no doubt in that case he operated for severe symptoms. I rather think that fibroid tumors during pregnancy are removed too frequently. The child ought to have a chance in these cases. I have seen some thirty cases of fibroid tumors complicating pregnancy, and the women have gone on to full term without the slightest difficulty, except in one case, and this patient became septic, possibly from some other cause not due to any fibroid. I have seen only two tumors that produced trouble, one during gestation, and the other at the end of the period. In one of these we removed a sixteen-pound tumor at five months; the woman recovered, and the child went on to full term. In the other case we had to deal with a true obstructive tumor which developed in the cervix. It required a Cesarean section to remove the child. Both child and mother lived. To remove fibroid tumors in the early stages of pregnancy, it seems to me, is entirely wrong, unless the patient manifests such severe symptoms as Dr. Ingraham related in connection with his first case.

DR. INGRAHAM (closing the discussion).—I have not much to say in closing except this: Whenever I could do myomectomy I would certainly do it. If I thought I could obtain good results from it I would resort to it. I do not recall ever having removed as many fibroid tumors as did Dr. Walker in one of the cases mentioned by him. I do not think any of us can tell exactly what we will do until we enter the pelvic cavity and see the condition of things.

With regard to one of my cases, the woman was pregnant and had a complicating fibroid tumor. I could not get the tumor out of the pelvis. It was growing so rapidly that I thought it would fill the pelvis before the child reached the sixth month. It was difficult to get the patient's bowels to move at all, and I therefore treated the case after the manner mentioned in my paper.

GENERAL TREATMENT OF GYNECOLOGIC PATIENTS.

By WALTER B. CHASE, M.D.,
BOROUGH OF BROOKLYN, NEW YORK CITY.

THE title of the paper which I have the honor to present to you today may not, I fancy, appeal to the younger gynecologists as it would if it discussed some problem concerning the major operations of gynecology or their technic, nor am I altogether certain that among the Fellows of this Association will this topic carry with it all the interest which a discussion of the operative treatment of fibroma or carcinoma would inspire. However that may be, I am fully impressed with belief that in the present state of gynecology such a study is not only necessary, but if properly considered will prove a fruitful topic for our consideration.

Neither argument nor suggestion is needed to establish the fact that in no department of medicine have advances been more radical or practically beneficial than in that field which furnishes the motive and reason for our meeting. It would be interesting and profitable to recount in detail the advances in practice during the past fifty years in which operative procedure has so largely supplemented general treatment, and to study the causes which have led up to it. This, time will not allow, but the fact remains that a sentiment seems to have seized the profession to treat all classes of diseases peculiar to women by operation. If an analysis of the causes which have contributed to this practice were made, it would be found that complex reasons are responsible for this change. First and foremost, the brilliant results of relief from so many conditions by operative procedure have cast a glamour over the whole subject and blinded the eyes of many to a true status of the situation.

It must be admitted, as one result of this superficial view of the subject, that a want of proper appreciation of these diseases, whether local or constitutional, has led to false theories and equally erroneous

practice, and accounts in no small measure for failure following operations which should never have been attempted, and has resulted in undue public and professional prejudice to necessary operations in properly selected cases. Another factor jointly responsible for the existing conditions is found in an influx among gynecologists of a large number of young men as specialists whose observation and experience of diseases as practitioners of general medicine have but imperfectly fitted them to such a discrimination as would enable them intelligently and authoritatively to determine whether local or constitutional measures would best meet the need of the patient. This fact must be appreciated before the remedy can be effectually applied. It is fair to assume that, other things being equal, the specialist who has had wide opportunities and larger experience will be better fitted and more successful as a specialist than he who has not for a considerable period of time studied general diseases in relation to their etiology, pathology, and therapeutics from the standpoint of the general practitioner.

To such a one the interrelation of pathologic conditions is not meaningless, but practical. The bearing such study and experience has in fitting one for special work cannot be properly appreciated by one who has never engaged in general practice. As already suggested, the exercise of superficial knowledge leads to lamentable failure. I have no doubt every Fellow of this Association present has at this moment crowding his recollection numbers of such cases. I recall one which is apropos—that of a hustling young specialist who sent for me to come and operate on a young married woman suffering from obstruction of the bowels, due, as he supposed, to an intrapelvic exudate. It was his wish that a laparatomy be done at once. On examination I found an offending mass which practically filled the pelvic cavity, most pronounced along the line of the colon, which threatened serious trouble. I recommended the use of a saline cathartic, which relieved the patient of all her discomfort, and with it the superficial tumor. This condition of constipation has a most important bearing on uterine displacements and pelvic congestions not only, but on a variety of hepatic and digestive troubles with a train of symptoms which, if not properly appreciated and intelligently treated, lead to unavoidable suffering and prolonged disability.

In the presence of chronic constipation the muscular, fibrous, and cellular structures of the pelvis become weakened and the hyperemia thereby induced makes recovery slow and difficult. Worse than all

these, atonic conditions have led to illogical and unnecessary surgical treatment by which valuable lives have been sacrificed.

Want of discrimination as to the etiology of menorrhagia and metrorrhagia has misled the physician as to the proper methods of treatment. Due regard to the state of the circulatory and nervous system must be had in formulating rational methods of treatment in these diseases.

The curet on the one hand, and preparations of iron on the other, are not the only measures to be adopted. Blood dyscrasia, malaria, and anemia are important factors in the problem, and their consideration must have due weight in providing measures for their relief. These demand scientific investigation of the functions of organic life and nutrition, and may include an exhaustive examination of the blood and its constituents. Perhaps nowhere in the whole domain of medicine are mistakes more often made than in the treatment of pelvic pain, and it must be admitted that a more difficult question never taxes the skill of a diagnostician.

Here the neurotic element presents itself as demanding differentiation from organic disease. These are the difficult problems which grow out of woman's complex organization. Here the reflexes play an important note—as protean in their manifestations as hysteria. How many women subject to pelvic pain have submitted to oöphorectomy, and even hysterectomy, allowing themselves to be mutilated and unsexed, for which there was not the remotest justification!

That uterine and ovarian disease often require such treatment is, and of necessity must be, the conclusion; but that a vast number of cases do not is equally true. In a large number of cases the treatment should have consisted of proper food, proper rest, and proper exercise, supplemented by appropriate general and medical treatment, including due regard for the *medicatrix naturæ*.

The same rule applies to a majority of the cases of membranous dysmenorrhea—a disease which in its manifestations and proper treatment has much in common with membranous enterocolitis. When curetment, local alterative applications to the endometrium, and medicine *ad nauseam* have failed, change of air and surroundings, from the lowlands to the highlands, from the sea to the interior, and *vice versa*, has brought with it relief and sometimes recovery.

It is little less than marvelous how membranous dysmenorrhea will yield to open air living associated with change of climate and

appropriate exercise; and, *per contra*, it is no less surprising how quickly these cases relapse into their original condition on returning to their former residence and resuming their previous method of living. When hygienic measures, including medication, fail, it is time, if ever, to resort to surgical expedients. A variety of disorders of menstruation, including amenorrhea due to imperfect development of the reproductive organs, constantly present themselves for treatment. The evils of a sedentary life, close confinement to school, overwork, want of rest and recreation, and a round of cares, be they social, mental, or physical, react on the young and developing organization and lay the foundations for impaired health, imperfect reproduction, and premature disability. The expectation that such disorders will yield to operative interference is repulsive to every instinct of science and natural medicine.

The influence imperfect renal excretion has in impairing the health of women is a matter about which there is no little misconception and ignorance. This condition does not necessarily imply organic disease of the kidneys. It has aptly been termed "renal insufficiency," and in many cases the variation of the health of the patient bears a constant relation to a diminished excretion of the solid constituents of the urine. Contrary to the common conception, absence of albumin in the urine does not exclude this condition. Neither does its absence afford a guarantee that organic disease of the kidney is not present. While albumin is usually found in chronic tubular nephritis, it is not infrequently absent in chronic interstitial nephritis. In the former condition the specific gravity is likely to be high, in the latter low. So, too, in the microscopic findings, the presence or absence of casts has peculiar significance, depending on the lesion present. One of the most important excretory products found in urine is urea, and without a knowledge of the daily amount excreted there is doubt. The average amount excreted by a healthy adult, 30 to 33 grams per diem, is taken for a basis of comparison. Of course, the character of the diet will influence the daily excretion. If proteids enter largely into the food ingested, the urea will be correspondingly increased, and *vice versa*. I do not wish it to be inferred that urea itself represents the poison in the urine, but that its amount, or the total amount of nitrogen, bears a pretty clear relation to the ratio of the real toxins on which depends the danger in uremic toxemia. Faulty excretion of uric acid lays the foundation for poor health in multitudes of women. Lithemia, with its train of perturbing symptoms, is a fruit-

ful source of ill health during the menstrual life of woman. The neuralgias, local and general, which find their origin here are myriad. Another source of blood contamination arising from ptomain absorption from the alimentary tract, which plays an important rôle in the diseases peculiar to women, is shown by an increased amount of indican in the urine. Enough has been said concerning the necessity of frequent exhaustive analysis of the urine of these patients, both quantitative and qualitative, to ascertain its variation from a healthy standard. Uremia and correlated blood impoverishment require careful consideration. True, this may demand technical skill of a high order to determine leukocythemia and other dyscrasiæ, but without such knowledge the gynecologists may be groping in the dark.

Tuberculosis as a complication of pelvic disorders is too often overlooked and needful constitutional and hygienic treatment is not instituted, and yet, within certain limitations, no pathologic condition is more amenable to relief by surgical means. The disorders of the sympathetic nervous system frequently find their origin in some impairment of ovarian and uterine function, and often simulate organic disease. Never-ending care is required not to confound these reflex disorders with organic changes, thereby leading to wrong diagnoses and erroneous practice.

These hastily and imperfectly considered conditions which present themselves in our patients appear to me to demand the most careful and painstaking consideration. If gynecologic practice has run riot in its surgical aspect—and who will not admit the tendency?—it will be well to keep ever in mind its broader aspect and give to each its due prerogative. One thing, however, should not be forgotten, viz., that many cases belong equally to the domain of medical and surgical gynecology, and in the due recognition of this fact will right methods be followed. It will never be known how many brilliant operations, the technic of which was without a flaw, failed for want of care, equally needful, in the management of the medical aspect of the case.

REPORT OF A CASE OF ACUTE PANCREATITIS AND FAT NECROSIS.

By EDWARD JOSEPH ILL, M.D.,
NEWARK.

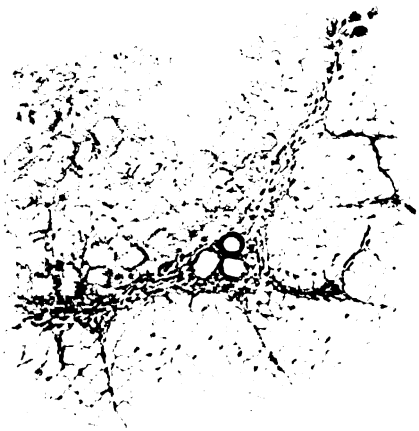
Cases of fat necrosis and acute pancreatitis that have presented themselves for operation are still rare enough to demand careful study. It is with this object in view that I report the following case:

Acute pancreatitis and fat necrosis simulating acute cholecystitis; operation; death in ten weeks from exhaustion due to sepsis. —On April 5, 1901, I saw with Dr. R. B. Whitehead, of Elizabeth, N. J., Mrs. L. C. Through the kindness of Dr. Whitehead I was furnished with the following history: the patient, an American of fairly good family history, forty-two years old, had two children. The last pregnancy, eight years ago, terminated in a six months' miscarriage, the fetus being badly macerated. About 1895 she began to have dyspepsia, and at intervals of from three to six months severe attacks of colic accompanied by vomiting. She was usually relieved by hypodermic injections of morphin of one-quarter of a grain. She was never jaundiced. The pain was always and only referred to the epigastrium. The present attack began suddenly on March 18, 1901, and was identical with her former attacks of colic. The pain was severe in the epigastrium. At first she vomited food, then large quantities of bile. The pain persisted, and tympanites became troublesome and was increased by the morphin given. Patient was unusually constipated.

On April 1, 1901, a tumor was made out in the epigastrium, and it extended toward the left. This increased rapidly up to the date of the operation, on April 7—*i. e.*, twenty days after the onset of the disease. Before the operation the urine was found to contain 5 per cent. of albumin, granular casts, bile, and was of an acid reaction, with a specific gravity of 1028. It contained no sugar.

When the writer saw Mrs. C. on April 5th he found a well-nourished, medium-sized woman with a temperature of 100.5° and pulse 100. Since her illness began her pulse had varied from 76 to 108, while her recorded temperature was highest on the fourth day of her illness, and not over 102°. She thinks that she lost thirty pounds. Evidently the loss of flesh was considerable to give her the idea of so great a loss. Dr. Whitehead reports that during the second day of her illness her temperature rose to 103° and her pulse to 120. From a study of the nurse's chart it is apparent that the patient was very restless, had taken anodynes at frequent intervals and strychnin for weakness. Probably on account of the morphin, much difficulty was experienced in moving her bowels. During those eighteen days she was more or less on a liquid diet. On March 30th a chill was recorded with an increasing temperature. At frequent intervals the patient complained of pain either in the epigastrium or in the right or left hypochondrium. The right hypochondrium appears to have been painful the most frequently. It seems that about April 3d these pains radiated in all directions and especially to the back.

Upon examination by myself a hard and sensitive mass was found to the right of the median line, extending six or seven centimeters in a downward direction. The mass was too hard and fixed for a distended gall-bladder. While the patient's pulse and temperature were fairly good, the appearance of her face indicated a serious illness. With a previous history of gallstone colic it was thought likely that she was having a slow perforation of a gallstone and an inflammation of the surrounding tissue. An operation was advised. When on April 7th the patient was anesthetized, the tumor was found to be distinctly nodular and extended over the whole upper portion of the abdomen, reaching as low down as the navel. The possibility of a fat necrosis and pancreatitis was suggested by the writer because of the nodular feel of the tumor, and the acuteness of the illness would exclude a malignancy. He operated, with the kind assistance of Drs. Victor Mravlag, R. B. Whitehead, and Charles L. Ill. An incision about three fingers' breadth to the right of the middle line brought to view a solid mass of tissue which began at the lower border of the stomach and extended as far to either side and downward as the finger reached. The mass was fixed and covered with grayish-white nodules. Evidently a diseased omentum presented itself to the eye. Upon section the whitish-gray nodules contained brownish spots. The wound of the omentum bled freely. It was



Fat necrosis.

now evident that we had to deal with a case of pancreatitis, and a passage was looked for in the direction of the head of the pancreas. By blunt dissection the stomach was separated from the transverse colon. Very soon a cavity was broken into, from which a hundred or more cubic centimetres (estimated) of slightly thickened and turbulent serum flowed over the lower part of the wound. The opening through the thickened omentum was enlarged sufficiently to admit two fingers, and a heavy rubber tubing doubled upon itself was inserted. This was surrounded with iodoform gauze. The gall-bladder could not be found among all of the adhesions, nor was it especially looked for. The upper part of the wound was closed with several sutures. Some of the omental fat was excised and sent to Dr. F. R. Bailey for examination. He reported it to be fat necrosis. The accompanying drawing of a microscopic section shows the disease quite well. There was some reaction following the operation, as the patient's pulse rose to 124 on the next day, and continued between 108 and 126 for about one week. The highest temperature recorded was 101.2° forty-eight hours after the operation.

After the first week of the operation there was a varied rise and fall, the temperature going to 102° on April 19 and the pulse rose to 134. The pulse was irregular and rapid, while the patient vomited frequently. There seemed to be a marked improvement on April 22d, when both pulse and temperature were below 100. Then there was again an irregular fever, rising as high as 102.2°. Later, from May 1st to May 7th, the temperature rarely rose above 100°; after that there frequently seemed to be a normal temperature, and the patient sat up on May 17th. She was thought to be convalescent and allowed to sit on the porch of the house. Soon, however, she returned to bed with an erysipelatous inflammation of the right foot, accompanied with a slight rise of temperature. On May 21st she complained of much pain under the left breast and in the right side of the abdomen, and some nausea. During all this time the wound behaved fairly well. At times there was a copious discharge of serous fluid, which was shown chemically to be pancreatic secretion and had the property of changing starch into sugar. The writer saw the patient on the fifth day after the operation, when necrotic fat had formed about that part of the incision which was exposed to the influence of the pancreatic fluid as it escaped from the wound. The incision had gone through over one inch of subcutaneous fat, and a layer of necrosed tissue formed in it.

The patient's digestion was the cause of a great deal of anxiety. Dr. Whitehead found that the digestion of food was assisted by the use of taka-diastase. When the patient was allowed to get up it was thought that she was practically well. On May 22d, as has already been mentioned, she had a rise of pulse to 120, which, on May 23d, rose to 150, with a temperature of 103.4°; the redness and swelling of the foot had subsided. There was much vomiting. On May 24th, the wound having almost closed, I again saw the patient because of the fever and an increase in the size of the tumor. I suggested reopening of the abdomen, which Dr. Whitehead did. Again some fluid was reached and a drainage-tube inserted. Temperature, pain, and sweat continued, though in a less degree. At times she perspired profusely. On May 31st there was a large discharge of thick yellow fluid from the lower part of the wound, from which the writer fished out some white masses. These proved to be necrotic fat tissue surrounded by exudative inflammation. Evidently the masses of necrotic fat were exfoliating. The discharge from the wound at times was immense. The writer saw a quart bottleful that had discharged in twenty-four hours. This fluid showed typical pancreatitic reaction. It looked as if it contained some bile.

On June 4th there was a sudden attack of pain, however, with a rise of temperature, and the discharge showed some bile and bowel contents. For a week the patient's condition looked more hopeful. Then she began to lose flesh and strength very rapidly and died on June 19, 1901. There had been a subnormal temperature for two days, then the temperature rose to 104° during the thirty-six hours before death.

Autopsy. Dr. Whitehead reported the following: "Emaciation was extreme, liver normal, gall-bladder full of pus and contained four large stones. Stomach normal (?). Stricture of the pylorus, the opening barely admitting the little finger. Of the pancreas only a small mass of gristly substance was left. Sinus of the first operation ran down to it. Sinus of the second operation opened into the gall-bladder and into the duodenum about two inches from the pylorus (decubitus due to the drainage-tube?). The ducts could not be made out, nor any more calculi found. The other organs were normal."

Of all the organs of the abdominal cavity the pancreas is the one that has undergone surgical treatment less frequently than any other and about which the surgeon knows less than any other. With

the exception of cysts, little was known until Balser in 1879, Fitz in 1889, Langerhans in 1891, and Koerte in 1896 wrote papers on fat necrosis due to acute pancreatitis; since then cases have come under surgical treatment with various results. Koerte reports four successful cases by P. Gouly, Walsh, Finney, Halsted and Richardson. W. S. Thayer, in the *American Journal of the Medical Sciences* in 1895, and Dr. Lund, in the *Medical and Surgical Report of the Boston City Hospital* for 1900, reported one successful operation each. Dr. George R. Fowler, of Brooklyn, New York, reports a case to the American Surgical Society in 1901 that got well.

These were all of the successful cases I have been able to come across following operative interference. Two cases are reported which recovered after pieces of necrotic tissue had passed per rectum. Both cases are reported by Chiari.

Postmortem cases have been reported by many. Such has been reported by Scott, who also speaks of two cases seen by Dr. William Pepper. His case was the only one found in the Pennsylvania Hospital records for ten years, which speaks for the rare occurrence of this disease. In *Hildebrand's Jahresbericht* for 1899 but five cases are reported, which also shows how rare the disease is, or rather how rarely it is recognized. Stockton and Williams reported two fatal cases in the *American Journal of the Medical Sciences*. Dr. Lund, in reporting Dr. Monroe's successful case after operation, reports five deaths. Two fatal cases are reported by Brennecke in the *Journal of the American Medical Association*. Among the foreign journals I find thirteen cases reported by Dr. Wagner, all of which terminated fatally.

As to the pathologic anatomy, the writer has learned more from a most excellent paper read by Dr. O. H. Schultze, Instructor in Gross Pathology at Cornell University, at the Practitioners' Club, of Newark, N. J., than he could gain from any other source. It is hoped that Dr. Schultze will publish his paper, especially so as he possesses a large postmortem experience in this form of disease.

We have before us, then, an illness which at the present time results fatally in the vast majority of cases, whether operated on or not.

While the symptomatology of the disease under consideration seems simple, it is apt to be confounded with a number of other pathologic conditions from which it is difficult to separate it. The majority of the cases have been operated on under the belief that

there was obstruction of the bowel. The symptoms have most frequently been described as occurring suddenly, with severe pain in the epigastrium, accompanied by great shock, rapid pulse, fever, and obstruction of the bowel. The acuter the case the greater the shock and the more rapid the pulse. Vomiting and very acute and complete paralysis of the bowel accompany most cases. It is due to those symptoms that so many cases have been operated on under the expectation of finding a strangulation of the gut. The patient's previous history invariably points to attacks of gallstone colic or frequent attacks of so-called gastralgia or acute indigestion.

The previous history of my own case was that of gallstone troubles, and the autopsy showed four stones to be present. It is reported that the patient is usually well fed and frequently fat.

It is not my intention, however, to go into the history of these cases any further than to explain my own case; that has been done so well by Fitz, Koerte, and lately by Robson as to need no further rehearsal. It will be proper, however, to review my own case and to note such points in the causation of fat necrosis as may be of value to the practical surgeon.

The disease has properly been classified into the acute, subacute, and chronic forms. The very acute is commonly accompanied by hemorrhagic conditions and necrosis of the pancreas. My own case, while starting as an acute one, rapidly subsided into the subacute form. Dr. Whitehead's verbal report was that the temperature reached 103° on the second day. It has been noted during the first five days that the number of respirations were out of all proportion to the height of the temperature and the number of pulse beats. The shock was not any more than she suffered with during her former attacks of "indigestion."

The case eventually rapidly subsided into a subacute condition. There was absolutely nothing in the case to draw one's attention to a disease of the pancreas at this time. Later, when the nodular tumor was found to be so extensive, a pancreatitis and fat necrosis suggested itself. Malignant disease was also thought of, but the acuteness of the case was against such a diagnosis.

A study of the temperature chart strongly indicated a septic condition.

When we consider such extreme cases as are often found at the autopsy (phlegmonous inflammation about the pancreas, the portal vein, and the spleen, with mortification of the retroperitoneal cellular tissue and pancreas, thrombus of the portal vein and general peri-

tonitis—Strube) we feel our helplessness; but we must consider these conditions as the changes in the tissue at the termination of a fatal illness, and that at its earliest stage we may have just so curable a condition as is found in the early stage of appendicitis or strangulated hernia, except that large areas of cellular tissue are involved early in the disease.

The experimental studies of pancreatitis and fat necrosis are so interesting and instructive that a study of them will well repay one.

The opinion has been expressed by Langerhans that acute pancreatitis is caused by a closure of the pancreatic duct due to a gastro-intestinal catarrh. This is a very plausible explanation and well known to cause inflammatory conditions of the gall-bladder. The experiment of closing the pancreatic duct by ligature, as conducted by Hildebrand, and thus producing a pancreatitis, would prove the above assertion. Hlava has also produced acute pancreatitis by ligature of the duct of Wirsung, especially after injecting bacteria into its lumen, but he was also able to produce the severe forms of hemorrhagic pancreatitis and fat necrosis by injecting gastric juice or hydrochloric acid in solution of two to six parts per thousand. While the former feels sure of the aseptic conditions of the experiment, the latter says nothing in this regard.

It has been asserted (Halsted) that a retroinjection of bile is a factor in the causation of the disease under consideration. It was also thought that an infection of the pancreas by colon bacilli (Strube), or some peculiar change in the pancreatic fluid, accounted for an acute pancreatitis and disseminated fat necrosis (Flexner). In many cases, however (Ponfick, Nauwerk), bacilli have not been demonstrated in the masses of the disseminated fat necrosis. We are all aware, of course, of the severe necrotic changes in the cellular tissue as produced by colon bacillus infection.

The most successful experimenter, no doubt, was Hildebrand, who, by aseptic ligation of the pancreatic duct, excision of parts of the pancreas, and transplantation of the pancreatic tissue from one animal to another, produced fat necrosis in twelve experiments.

There are some, however (Fränkel), who assert that pancreatitis is secondary to fat necrosis.

In actual practice we do not know what cases produce fat necrosis. It has been asserted by Fränkel that but 10 per cent. of all diseases of the pancreas present the symptoms of fat necrosis. Thus, a case of fat necrosis is reported (Swierzewski) where no changes in the pancreas were discovered. Such an assertion must,

however, be taken with circumspection. Cases of severe hemorrhagic and gangrenous pancreatitis have been known to be free from fat necrosis (Simon). It has been observed that aseptic rupture of the pancreas has not produced fat necrosis. These cases of rupture of the pancreas have been reported to form cysts (Harden) and no fat necrosis resulted. Again, rupture of the pancreas producing fat necrosis has been observed (M. B. Schmidt).

From all that has been learned the practical surgeon can glean little from bedside work. It seems most probable, however, that an injury to the pancreas or septic infection, or both, are necessary to produce the disease.

Concerning the surgical treatment we are still in the experimental stage. Greig Smith in the last edition of his work truly says: "Thus far systematic and deliberate surgical treatment has got little beyond cysts of the pancreas." From all the deaths following operation it is apparent that the proper treatment is still to be found. There are many elements to be considered, and not the least the immediate causation. The usual treatment has been to incise the tissue over the tumor, drain either through that incision or through the loin (Robson and others). It is apparent from all cases reported that at best convalescence by drainage is a slow one (Thayer three months, Monroe three months, Fowler several months). In a personal communication Dr. Fowler kindly writes: "The case of pancreatitis was a long time in recovering. A sinus persisted for several months, through which pancreatic secretion discharged. She finally made a complete recovery. The operation was a right lateral laparatomy and multiple tube drainage." Cases of pancreatic fistula have been known to remain open for from three to twenty-four months (Lilienthal, A. B. Johnson, Bull, Halsted, and Kelly), and secondary operations are likely (Thayer and my own).

As gallstone disease (Simpson, Opie, and others) is so frequent in connection with pancreatitis, their removal will likely have some bearing as to the prevention of the disease.

If the whole organ has become gangrenous, drainage may do very well. If, however, only a part has been destroyed—and this seems to be the case in the specimen exhibited, as well as those seen by the writer through the kindness of Dr. Schultze—then nothing short of complete extirpation would apparently do. If this organ or any part of it (Hildebrand) secretes a vicious fluid which, under certain circumstances, will produce death of the fat tissue surrounding the organ, and thus possibly predispose to sepsis, then the entire organ

should be removed; for we know very well, from glandular organs in other parts of the body, that their peculiar secretion will continue even when small parts remain.

We have long ago learned that patients do better in whom a complete operation has been done than one where diseased tissue was allowed to remain. We are told, however, by Boccardi that total removal of the pancreas produces glycosuria and many fatal changes in such important organs as the spinal cord, liver, glandular structure of the stomach, etc.

Experience only will tell us how to manage this very interesting disease. It will likely tell us that an early diagnosis and an early operation, contrary to all the experience of to-day, is most strongly indicated.

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INDICATIONS FOR THE COMBINED VAGINO-ABDOMINAL OPERATION FOR HYSTERECTOMY.

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At the present time the indications for the combined vagino-abdominal operation for hysterectomy are few in number. In the opinion of the writer the advantages to be gained in some few selected cases that seek operative relief are so great in the combined operation that it is difficult to understand why it is not universally employed. The operation is not as difficult as an abdominal hysterectomy in the same case would be. It does not require any more time to perform it when the operator has accustomed himself to the various steps of the operation. The writer grants that there is greater mutilation—that is, it removes the entire cervix, while the ordinary operation for fibroid tumors leaves the vaginal portion of the cervix. Yet this is a small consideration compared with the great advantages to the patient in the cases in which it is advised.

I. In cancer of the body of the uterus, where that organ is enlarged to such a size that it would be difficult or impossible to remove it through the vagina without mutilation, there is a distinct advantage to the patient and to the operator to be gained by the combined method. The patient should be prepared in the ordinary way, and, after she is placed on the operating table in the lithotomy position, the vagina should be scrubbed and sterilized. The neck of the uterus should be dilated and the cavity cureted until all the soft, easily broken-down cancerous tissue is removed. The cavity is then swabbed out with pure carbolic acid. This can be done in a very few minutes. The uterine cavity is packed full of gauze and the cervix closed with a continuous suture of silk. The vagina is again washed and sterilized. By using the ends of the silk for traction the cervix can easily be manipulated, the mucous membrane divided

all around the cervix and pushed well back, and the bladder detached from the uterus up to the peritoneum. The vagina is then packed tightly with gauze and one end left protruding from the vulva. While the operator is sterilizing his hands his assistant places the patient in the ordinary position for an abdominal section. The operation can be completed much quicker by this method than a total extirpation could be without the vaginal work, for the reason that in doing the last part of the operation, ligating the uterine arteries and dissecting out the cervix, there is no hesitation on the part of the operator in finishing the work. As soon as an opening is made into the vagina the gauze is to be removed by an assistant pulling on that portion projecting from it. This leaves a comparatively clean vagina, and the danger of infecting the patient from the vagina is minimized. And with the vaginal mucous membrane well pushed back the operator can finish the operation from above in a very few minutes. The cancerous uterus has not been mutilated in any way, and there is no danger of infection from that source. The possibility of implanting cancerous cells in the wound, as has been suggested by Cheyne, is wholly avoided. This part of the technic practically excludes the probability of infecting the patient from her cancerous uterus, as could easily be done if the uterus were not cureted and thus treated. The whole procedure thus far has not occupied more than from five to seven minutes. As soon as the abdomen is opened the patient is put in the Trendelenburg position and the operation is finished in the ordinary way.

The manipulation necessary for the removal of the uterus always extrudes some infectious material from the cervix, if the uterus has not been packed with gauze and closed with suture. By the combined method this danger is avoided. Before closing the pelvic peritoneum a strip of gauze should be carried out through the vagina and lightly packed over the raw surfaces in the pelvis. The pelvic peritoneum is then closed with a continuous suture of fine catgut and the abdominal incision united in the usual manner. This gives us thorough drainage and a closed peritoneal cavity.

II. The writer would urge the great advantage to the patient of the combined method in fibroid tumors of the uterus with a history of repeated attacks of peritonitis where the tumor is fixed by pelvic adhesions and complicated by a suppurating ovary. The patient should be placed in the lithotomy position and the vagina scrubbed and sterilized, and, if the cervix is accessible, the uterine cavity should be cureted and swabbed out with pure carbolic acid. The

vaginal mucous membrane should be detached entirely around the cervix and well pushed back. If a suppurating ovary is present and the tumor is in such a position that it is accessible from the vagina, it should be opened freely and the cavity well washed out.

The bladder should be dissected back as far as possible without opening the peritoneal cavity. The main object to be sought is to have a clean vagina for the subsequent operation and to empty the pus cavity from the vagina before opening the peritoneal cavity. The vagina should now be packed with a long strip of gauze to catch any infectious matter extruded from the uterus during the subsequent steps of the operation, and one end of the gauze left protruding from the vulva. While the operator is sterilizing his hands the assistant can place the patient in the usual position for an abdominal section. If there is no contraindication the patient should be placed in the Trendelenburg position and the operation completed through the abdomen. In these cases the whole pelvic cavity is left raw. If after the uterus and suppurating ovaries are removed there is enough peritoneum to be approximated, a long strip of gauze should be carried out through the vagina and the pelvic cavity and all the raw surface covered over with gauze. The peritoneum is then closed above the gauze, leaving a narrow space to admit one end of the gauze, which extends a few inches into the abdominal cavity. No other drainage is used. It not infrequently occurs, after these operations with a large suppurating ovary, that so much injury has been inflicted to the pelvic peritoneum that it cannot be brought together so as to close the peritoneal cavity perfectly. In these cases one can safely rely upon gauze packing, leaving it in until the fourth or fifth day. The writer is convinced that many of these very desperate cases suffering from chronic sepsis can be saved by this method. Every portion of necrotic tissue as well as raw tissue can be covered over with gauze and prevented from coming in contact with the healthy peritoneum and coils of intestine. The free drainage which this method permits greatly favors convalescence. As in cancer of the uterus, the combined method makes the removal of the cervix from the abdomen very much easier than it would otherwise be, and the procedure really shortens the time of the operation over total extirpation without the vaginal work. By this method we have a practically sterile vagina when it is opened during the abdominal operation, which is not true in total extirpation by the abdominal route alone.

III. Women with gonorrheal infection frequently have repeated attacks of pelvic inflammation, suffering for years before they come to the operator for the removal of suppurating ovaries. By this time the adherent mass of inflamed tissue fills the pelvic cavity and protrudes into the abdomen. There is no chance of saving either ovary and no reason for leaving any part of an infected uterus. The asepsis possible only in the combined operation has enabled the writer to get recoveries in many of these desperate cases where ordinary methods would have resulted disastrously.

The combined method has the following distinct advantages :

1. It prevents infection, by the technic of the operation and the use of gauze to protect the healthy coils of intestine from infected areas.

2. There is less danger of injury to the bladder and ureters.

3. The drainage is perfect, with no complications like hernia or fistula following it.

4. The improvement in the method employed enables us to operate successfully on desperate cases, where death would follow were the vaginal or the abdominal operation alone employed.

SOME FORMS OF DISEASE INVOLVING THE UTERINE APPENDAGES.

By AUGUSTUS P. CLARKE, M.D.,
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In considering any of the various forms of disease that invade the pelvic structures, it not infrequently becomes necessary to determine to what extent the uterine appendages may have become involved by the presence of such a morbid process. Experience leads to the belief that the large proportion of diseases affecting the uterine adnexa results from extension of morbid conditions from neighboring centers. So firmly has this point become established that now no competent surgeon institutes measures for entering upon an operation for the removal of the appendages until he has carefully studied all the special phases of the tissues of the surrounding parts. Inflammation of the endometrium, either of a catarrhal or of a gonorrheal form, may extend its septic action upward to the lining membrane of the Fallopian tubes and thus give rise to salpingitis or ovaritis. The latter as well as the original trouble can often be cured when resort to active treatment has been timely made. Such relief can be effected by dilatation and curetment of the uterine cavity, carried up as far as about the openings into the tubes, and by the employment of local applications to the parts affected. I have met with cases of salpingitis in which the inflammation had evidently been conveyed from the uterus along the course of the lymphatics of the broad ligaments. In such cases the lymph channels were often visibly affected, being thickened and becoming painful or tender.

Continued local treatment, even in the chronic forms of disease, often proves of service. Applications of ichthyol-glycerin, repeated use of hot douches, soothing suppositories, counterirritants persevered with, are often productive of excellent results. Diseases of the pelvic peritoneum have not infrequently been the centers from which the Fallopian tube has become affected. Tubercular infiltration of this membrane, originating from the intestine or from its

glandular tissue, may be a determining cause. Cases of this character have come to my observation. In those cases in which celiotomy and a mere removal of a tube or a partial excision of an ovary have been resorted to, recovery has occasionally been practically complete. Oöphoritis or ovaritis generally has its connection with the puerperal state; circumscribed hyperemia or hematoma may take place in the ovary from sudden suppression of the menstrual discharge. General constitutional disturbances of the organism may be productive of a form of such a condition. Many cases of hematoma of the ovary I believe to be the result of normal physiologic processes, and scarcely to require any treatment except rest and the avoidance of excitement. Organic lesions of the cervix, whether resulting from laceration or from septic infection, have often been leading factors in the production of oöphoritis. Large abscesses of the vaginal wall or of the pelvic connective tissue have been the starting points of acute inflammation of the ovary.

Affections of the cecum or of the vermiform appendix have been in not a few cases the procuring cause. I have not infrequently noticed that the more serious forms of rectal or anal disease have been attended with much suffering from involvement of the uterine adnexa. So impressed have I become with the agency of these latter factors, that I rarely enter upon the execution of any extended plan of treatment for the relief of suffering from affections of the uterine appendages until after I have made a careful examination of the condition of these portions of the intestinal tract. I have more than once met with a case in which salpingo-oöphorectomy had been resorted to without its affording relief, owing, no doubt, to the fact that the morbid condition of the rectum had been allowed to remain largely unattended to.

Not only disease of the rectum, but also abnormal conditions high up in the colon, sometimes seriously affect one or both ovaries. I have records of three cases of dysentery in which an ovary became thus implicated; in two of the cases the right ovary was involved; in the third case the suffering was severe on the left side. In all the three cases the enlargement and the pain were more or less persistent until after control of the intestinal trouble had been effected. In a case seen some eighteen months since, swelling and prolapse of the right ovary and tube were for upward of six weeks most annoying sequelæ of an acute diarrheal attack. There can be but little doubt that in these instances the septic matter from the intestinal tract was the chief cause of the complication. Constipation

and undue distention of the sigmoid flexure by the accumulation of fecal matter do at times intensify, if not give rise to, oöphoritis, especially that occurring on the left side.

Another cause of ovaritis will be found to be as the result of the graver forms of displacement of the uterus. Retroversion as well as retroflexion is sometimes a prominent factor in the production. Here, it should be remarked that malpositions of the uterus, when left unrelieved, are liable to become a source of danger.

The presence of rapidly growing uterine myomata tends to exercise baneful influences upon the integrity and function of the appendages. This is often evidenced by the occurrence of pain and sometimes of excessive flooding during menstruation. The mere resort to salpingo-oöphorectomy for relief will not infrequently prove unavailing. The more recent experiences confirm the fact that nothing short of a surgical measure for the removal of the growths themselves before they have assumed extreme dimensions will be likely to eventuate in a cure and the saving of the appendages. Such a preservation is sometimes an important matter for consideration, particularly in the case of a woman who has not reached the menopause and who is desirous of fulfilling the objects of her marital relation. Tumors developing in the substance of the ovary sometimes prove to be the cause of much hyperemia.

Carcinoma as a diffuse infiltrating mass having its starting point in the epithelium of the ducts of Pflüger becomes, unless removed at an early date, a center of infection to the neighboring parts. Carcinoma as a primary affection in this situation is quite uncommon. I have, however, seen two such cases, but fortunately they were in the early stages of development. The possibility of the existence of such a growth, when one is endeavoring to reach a satisfactory diagnosis of what would seem to be a serious form of disease of the ovary, should always be kept in mind. As far as my own experience has extended, I think that some of the various forms of sarcoma, such as adenosarcoma, fibrosarcoma, and myxosarcoma of the ovary, are more often here met with. Such growths occasionally take on degenerative changes. Eleven months since I saw a case of myxosarcoma that had undergone a calcareous change. I find, in my notes made some time previously, the record of a fibrosarcoma which had taken on fatty transformations. In both cases the patients had passed the menopause.

Accidents or injuries during parturition may be productive of oöphoritis. I have chanced to meet with cases of this character. A

case of such an injury seen during February last was undoubtedly the result of a prolonged labor. When first called to the case there was no sign that septic infection had gained admission to the parts. There was no history of a previous suffering from an ovarian trouble. Soon after the close of the labor the left ovary was noticed to be considerably enlarged, and it became painful. Rest and local treatment maintained for some few weeks proved sufficient for the reduction of the swelling and relief of suffering. I believe that a partial prolapse of the ovary first took place, and that this was owing to the narrowness of the pelvis, which led to the compression of the tissues of the ovary against the harder parts of the surrounding structures. Contusion of an ovary from a more or less direct violence may occur. Such a result taking place during a railway accident may become a serious matter for consideration, especially when compensation for injuries is demanded.

In reaching a conclusion which this subject involves, the more obscure effects that a previous gonorrheal attack may have produced should be kept in view. The history of dysmenorrhea and sterility of the patient, the thickening, hardening, or closure of the Fallopian tubes, may sometimes open the way for an intelligent solution of the cause of the trouble. The finding of gonococci in the mucus coming from the vaginal introitus or from the endometrium will prove a valuable discovery while in the search for the cause of the suffering. In one case seen by me the claim for damages on account of alleged injuries to the uterine appendages was dropped when the fact became known that a child born at a date somewhat preceding the occurrence had been a serious sufferer from a gonorrheal ophthalmia.

Another interesting form of disease which I have met with has been that of a tubo-ovarian cyst. The enlargement in one case extended out toward the fimbriæ of the tube, and it could at intervals be distinctly felt on careful bimanual examination. In another case there had been previously much acute inflammation of the Fallopian tube; this had resulted in closure of the tube. Curetment about the ostium uterinum (right side) failed to effect an opening or to produce a discharge from the tube. Excision proved the only remedy for relief. Another case which I have seen I believe to have been that of an ovarian hydrocele, because the ovarian sac was situated at or near the opening of the abdominal portion of the tube. The sac became at times greatly enlarged posteriorly toward the broad ligament. There was no evidence that the fluid found its way into the abdominal cavity; it appeared to be prevented from taking

that route by the presence of an adventitious sac or tunic to the ovary, which with the Fallopian tube formed a common cavity or reservoir. A peculiar feature which this preternatural condition presented was that the hydrocele would become from time to time, as before intimated, much reduced by the irregular discharging of a watery substance through the uterus into the vagina. The fluid was limpid and resembled that from a hydrocele of the tunica vaginalis testis. The possible occurrence of hydrocele in this situation should always be kept in mind, and it is all-important to determine whether the condition has resulted from pyosalpinx or has become the sequel from distention of the Fallopian tube with serous fluid following inflammation and closure of its abdominal or celomic ostium. I have observed cases in which the attack was merely of a catarrhal character in its general aspect.

Hydrosalpinx occurring as a later stage of pyosalpinx, according to my observation, not infrequently assumes sooner or later most alarming phases, although I have met with a few cases in which spontaneous recovery finally took place. Such a fortunate result occurred in a case seen by me with the late Dr. E. P. Hurd, of Newburyport. The patient had had a history of pyosalpinx of the right side, though no radical operative measures had been undertaken for its removal. Later the collection became purulent and the local swelling and constitutional disturbances quite threatening. An early operation for excision was determined upon; during the night, however, before the morning that we were to meet a spontaneous discharge of the purulent exudation took place through the rectum. The suffering shortly after that was greatly relieved. The patient from that time forward gradually and uninterruptedly improved; an operation for the removal of the appendages was subsequently regarded as unnecessary. There can be no question that the purulent matter had its seat in the Fallopian tube, for its enlarged, tortuous, and irregular outline could be easily and most satisfactorily mapped out.

Gonorrheal pyosalpinx is best denominated as a purulent salpingitis, and is usually the result of a vaginal or cervical attack of gonorrhea that has extended its morbid influences to the endometrium and to the lining membrane of the Fallopian tubes. A gleety or watery discharge may be the sequel of an attack not unlike that which is passed through the male urethra, although it is usually much more copious in its extent. More or less adhesions of the tube to the surrounding parts may take place, or contraction or

closure of its lumen may ensue. This condition, if the patient has not already reached the menopause, may lead to her becoming the subject of dysmenorrhea and sterility. The latter condition I have sometimes thought was in some few instances a fortunate result, for if both Fallopian tubes become permanently sealed it will prevent the woman from begetting diseased offspring that may become dependent for support on public charity. I have nevertheless known quite a number of cases of genuine purulent salpingitis to terminate favorably, the women afterward to have married, and to have led seemingly happy and useful lives.

I think, therefore, that our later experiences should justify us in regarding that, as a rule, a large class of cases of suppurative salpingitis would fairly well recover without incurring the necessity for resort to radical surgical treatment.

MANAGEMENT OF FACE PRESENTATIONS.

By MAGNUS A. TATE, M.D.,
CINCINNATI.

THREE years ago I had the pleasure of reading a paper on the management of face presentations before the Academy of Medicine of Cincinnati. As there is no more important subject in the domain of obstetric surgery than the proper management of face cases, I have rewritten my paper and present it to you for your consideration. The subject of face presentations is best dealt with under three general divisions, namely:

1. The management before and during dilatation of the os.
2. When the chin is anterior.
3. When the chin is posterior.

The skilled obstetrician of the present day is the conscientious physician who studies his case before as well as after labor; who looks out for the welfare of his patient from a different standpoint than did former obstetricians. The practice of midwifery has made very rapid strides in the last few years, and one of the important advances, if not the most important next to asepsis, is that of abdominal palpation for diagnostic purposes. The most sceptical now know with what ease we can diagnosticate vertex, breech, and cross presentations by abdominal palpation, and with great care in experienced hands the brow may be made out. While face cases may exist before dilatation of the os, this condition should be considered as a rarity, as it is now generally known that a face presentation results during the process of delivery, the brow preceding, and during its passage through the brim a mento-anterior or posterior develops. Face presentations are unusual; the majority of obstetricians claim that they occur about once in two hundred and fifty cases of labor, and it is not an uncommon occurrence for us to hear of physicians, enjoying a large clientèle, practising many years without seeing a case of face presentation.

THE MANAGEMENT BEFORE AND DURING DILATATION OF THE OS. The management during this stage deserves special study, as it is the duty of obstetricians to give to the patient, by means of proper advice, every chance to help herself, and, if not successful, to try by manual means to rectify the malpresentation. The view of many that we are unable to accomplish much by external correcting of positions does not agree with the opinions of advanced obstetric scholars. I consider the management of this stage in the following manner, namely, postural treatment, Schatz's and Baudelocque's two methods.

Postural Treatment. This method is only practicable when the chin is posterior. It may be divided into three subdivisions, each having its advocates:

1. Place the patient on the side that the chin points to, in the Sims position, and by means of gravity the head is taken away from the superior strait, and in this way flexion may be substituted for the beginning of extension—in other words, a substitution of a vertex for a brow.

2. Have the woman assume the knee-chest position, with the hope that by means of gravity the brow will be removed from the inlet, and when the patient assumes the recumbent posture a vertex may occupy the superior strait.

3. The position that appeals to me very strongly is the so-called Trendelenburg posture; this also may accomplish a change in the presentation by means of gravity.

Schatz's Method. An assistant presses upon the breech and head, while the operator makes pressure upon the thorax of the child in the opposite direction, by means of which flexion of the fetal body and head follows. In some very unusual cases, where the child is freely movable, this may be accomplished, but in the general run of cases I cannot conceive the practicability of this method.

Baudelocque's Methods. In practising Baudelocque's methods always try and use due care not to rupture the membranes until the os is fully dilated.

First method: consists in both external and internal manipulations. The fingers in the os push up on the chin, and the other hand externally presses down upon the occiput. This treatment is far from being new to obstetricians; its practicability and usefulness appeal to us all.

Second method: introduce the hand into the uterus, pull down the occiput, while externally the other hand makes pressure upon

the back of the child so as to flex the body; or introduce the hand into the uterus, pull down the occiput, while externally the hand makes pressure upon the thorax of the child so as to flex the body. Methods like the above are objectionable in that the hand must be introduced into the uterus, and such a procedure is always fraught with danger. Shock, hemorrhage, and sepsis are three important factors against the introduction of the hand into the uterus, and, unless version is contemplated, do not subject the patient to the above three dangers.

MANAGEMENT OF MENTO-ANTERIOR POSITIONS. It is extreme folly for the obstetrician to always predict an easy labor when the chin is anterior, for a glance at the history of mento-anterior positions shows us that labor is more tedious than the ordinary vertex case, and with a greater mortality both as to mother and child. This naturally does not apply to that unfortunate class of cases—namely, premature births—which are very frequently delivered as face cases. It is also not uncommon that a face presentation is accompanied by some complication, so it behooves the practitioner to be somewhat guarded in his prognosis, even under the most favorable existing circumstances. In all operative work in the practice of obstetrics four things, in my judgment, should be strictly carried out:

1. Empty the lower bowel of all fecal matter.
2. Be sure that the bladder is empty.
3. Absolute cleanliness.
4. Always use an anesthetic, no matter how trivial the operation.

Mento-anterior positions will be treated in the following manner: when the face is at or has just passed the brim, or when well down in the pelvic cavity, the chin being anterior, is considered a favorable presentation, and non-interference is generally countenanced and practised by the majority of obstetricians. We must be governed by all existing conditions determinable as to whether interference is justifiable, and Reynolds says that, with the face at or above the brim, watch the case carefully and leave the birth to nature: (1) when the woman is a multipara; (2) when the former labors were easy; (3) when the soft structures are soft and dilatable; (4) when the pelvis is ample; (5) when the child is of normal size; (6) when the pains are frequent and the uterus powerful; (7) when no pathologic obstruction exists.

Should the woman be a primipara I would also give an opportunity for nature to deliver spontaneously, provided no pathologic hinderance to a normal birth exists.

CASE I.—Mrs. O., a primipara, aged eighteen years, healthy and well developed. When called to see patient I found that she was in the second stage of labor and having good, strong, regular pains, and upon vaginal examination a face presented with the chin to the front. As constant but slow advancement of presenting part was taking place, I decided upon non-interference, as there was no obstruction to delivery discernible. With the exception of the appearance of the child after birth, its condition was all that could be asked for. Male child, weight eight pounds. Face and lips were very much swollen and discolored, and, as there was difficulty in the child's swallowing for three days, the parents were somewhat alarmed; but having taken the precaution to warn them as to the probable appearance of the child, no dissatisfaction existed. I cite this case, as I think it is a good example for non-interference on our part, even if the patient is a primipara.

Some few writers claim that better results can always be obtained by flexing the head—in other words, changing from a mento-anterior to an occipito-posterior position. This practise I cannot approve of; nay, I even go so far as to say that we are interfering with nature instead of aiding her. Occipito-posterior positions are difficult to manage, and of the two evils always give me a mento-anterior presentation to deal with. If you should consider that the case is one that should not be left to the efforts of nature to deliver, or if you would always interfere, select a primary podalic version, as that will give you better results.

The forceps applied to a face case at the brim is an extremely difficult operation, and, unfortunately, is rarely accomplished without injury to the mother and much danger to the life of the child. Nearly all writers strongly advise against this method of treatment, unless no other is feasible. The face well down in the pelvic cavity, I would let nature have full sway, provided constant headway was being made. The finger placed in the rectum of patient, and pulling up on the head of the child, may be of some assistance to its birth, and also may afford some protection toward the support of the perineum as it is lifted up, as suggested by Goodell. I would not practise this method unless there was some delay in the head sweeping over the perineum, as I consider this a fruitful means toward making your patient septic. If there is no progress, the face remaining in the pelvic cavity, then we have two methods of managing the case:

1. Apply the forceps, try to deliver (always selecting a strong

pair, as considerable traction will have to be made), and thus we assist nature to do what she, unaided, cannot accomplish.

2. Lift the face above the brim, flex the head, and make an occipitoposterior presentation. If the woman and child be in good condition now the case may be left to the efforts of nature, provided the corrected presentation remains as such; but if the patient's strength is waning, her expulsive power decreasing in force, and the pains diminishing, apply the forceps and try to deliver. It might aid if, when the presenting part is well under the symphysis, we place the woman in the Walcher position, as by this means we have a gain of one centimeter in the anteroposterior diameter. When rotation begins remove forceps and reapply them; but if we are so unfortunate as to encounter a case where the head will not rotate, then lift the head above the brim, turn the child, and deliver feet foremost.

MANAGEMENT OF MENTO-POSTERIOR POSITIONS. It is needless to say that a chin posterior is a grave condition to encounter, and it is with much hesitancy that I state what must be its management, as we cannot have the head adapt itself in a complete manner to the pelvis. Should it be regarded as so serious as to always call for some interference, or is it our duty to trust to nature to rotate to an anterior position? I am strongly of the opinion that interference is always justifiable when the chin points posteriorly, either at the brim or in the pelvic cavity. If it is possible, never allow the chin to enter in a posterior position; but if we are late in seeing the case, and nature should be so kindly rotating the chin to an anterior position, we can indeed congratulate ourselves. The chin prominent, neck well extended, and the occiput below the promontory of sacrum in a capacious pelvic cavity, it is reasonable for us to suppose that rotation will occur; again, the chin plays the same rôle as does the occiput in vertex cases, the chin entering the pelvis deeper than the most prominent part of the forehead the greater the chance of rotation. We take a serious chance in waiting for rotation to take place, and the question arises, Are we justified in so doing? Winckel makes the following forcible statement: That labors in which the maternal death-rate is approximately one in seventeen and fetal one in ten are not to be contemplated with folded hands. The dangers of leaving the case to nature are many. The labor is always a tedious one; extension must be marked for an anterior rotation to occur, and so great pressure and strain must necessarily be placed upon the neck; the bloodvessels are injured, and in some cases a

decided intracranial hemorrhage has followed. With such an injury to the neck and head it is seldom, if ever, that a live child is born. Rotation may be partly accomplished, when the occiput catches upon the shoulder, bringing the face into a transverse diameter, and then all progress ceases. It is also a well-known statistical fact that mento-posterior positions are frequently complicated, whereby dystocia may result. The longer the delay, not only is there great danger to the life of the child, but that of the mother is also placed in jeopardy, and if rotation is not accomplished the child cannot be born alive. The face at the brim may be changed into a favorable vertex presentation by manual means. The hand introduced into the dilated cervix lifts up the face and brow, flexes and brings down the occiput. The majority of authors claim this is not a difficult thing to do, but no less an authority than the late Lusk claimed that it was far from being easy of manipulation. This procedure should always be given the first consideration, and, if not successful, try turning the chin to an anterior position by means of the hand. Turning the head with forceps is a dangerous method even in skilled hands, but it now has its place and its advocates, and in such a case may be resorted to, using preferably the straight-bladed instruments. The application of forceps after the head is flexed or the chin turned anteriorly depends entirely upon the condition of the mother and child. If good, let nature alone; but if the pains are feeble and condition grave, do not hesitate, but apply forceps and deliver as soon as possible. The following case has many points of interest:

Case II.—Patient aged twenty-eight years. Had had one child after a tedious labor, which is living today, aged four years. Membranes ruptured twelve hours before I was called to see the patient by a midwife. Pains every three minutes, but, according to midwife's statement, "they are much weaker than an hour ago." Patient states she had not felt any life for two days. Upon abdominal palpation I very easily detected the back of the child to the right and front, head below and breech above, but upon auscultation I could not hear the fetal heart. Vaginal examination: vagina capacious; secretions scant; unable to feel the promontory of sacrum; os soft and dilated; face presented with the chin to the left and posterior, brow to the right and anterior. Dr. J. S. Caldwell saw the case with me, and after a thorough consultation we determined to try and flex the head and so convert it into a R. O. A. position; but I was unable to accomplish this, so the next procedure I tried was to rotate the face, so as to bring the chin to the left and

front, and I was surprised with what ease it was done. I then applied the axis-traction forceps, but before making traction an examination revealed that the face was back in its original position. The blades were removed, I again rotated, then held the face in proper position while I put one blade of forceps on with the other hand, and, as this blade kept the face from returning to its original position, without much difficulty the other blade was applied. Under our united traction the face slowly advanced, and when we were congratulating ourselves upon our progress the forceps began to slip. I removed this pair and applied another; but we could not make any progress, so I again applied the axis-traction forceps. After five applications of forceps, and with much mortification at the blades slipping, we succeeded in delivering the woman of a large male child weighing nine pounds and ten ounces. The child was still-born, and from its appearance it had probably been dead a few days. The face and lips of the child were much swollen and very black, the head large and flabby. The perineum was not torn, but, as I stated, the vagina was very capacious. Patient made an uninterrupted recovery. Here was a case where the forceps slipped after application, and the explanation given why they would not hold is the large, flabby head of the child. A very proper question might be asked: with a history such as this patient presented, would it not have been better to have made a craniotomy? I might answer this by saying that if our foresight were as good as our aftersight we would do differently in many cases. When we are unable to flex or turn the chin to the front the operation of version is applicable. If we have a case where the head is abnormally large, the arm and cord prolapsed, or the chin turned to the anterior position and will not engage, version will best serve the interest of child or mother. This plan of treatment I chose in the following case:

CASE III.—Patient aged nineteen years. External palpation and examination previously made by the interne and myself. L. O. A. position. Pains feeble and dilatation of os very slow, and the first stage was not completed until after patient had been in labor seventy-two hours. Patient's condition was good, but with descent, instead of usual flexion, extension took place, and so a L. O. A. was turned into a R. M. P. I tried to change the position back to a vertex, but failed to keep it there. Then I applied the forceps, but after it was in place the right mento-posterior was always presenting, so, of course, I could not make traction; and as I did not care to try turning the head with the forceps, I resorted to version. The

child was stillborn, weight eight pounds. Mother's recovery protracted, but she left the house in good condition.

The face being in the pelvic cavity, with the chin posterior, lift the face up to or above the brim and try flexion or turning chin to front. The question now as to whether to resort to version at this stage depends upon the condition of mother and child; if mother's condition is good and she is not exhausted, and the child is alive, we may make a podalic version; but the fetal mortality in such a case is very high. If we are not able to lift the face—in other words, if we meet an impacted case—four things suggest themselves, namely, forceps, symphysiotomy, craniotomy, and abdominal section.

Forceps. It must indeed be a selected case where the chin is posterior that we can countenance the application of the forceps. Traction with a mento-posterior presentation will make the evil a far greater one, and can only be condemned, except in cases like the following: (1) A premature child, chin right down upon the perineum, and (2) when the case is seen late and the chin is distending the perineum to its greatest extent. Before the forceps are applied I would make deep lateral incisions into the perineum, for a clean cut is better than a sloughing, ragged edge. This child, from such pressure, must be dead, as I am not cognizant of any living child going through such an ordeal and living.

Craniotomy. When we are positive that the child is dead, we can look upon the case in no other light than that of a foreign body to be removed, and the easiest and at the same time the best method is to simplify delivery by making a craniotomy. This operation at the present day is justly not made with the same frequency as formerly, and modern authors, with the exception of a few, now claim that craniotomy, in our enlightened surgical era, should never be made upon a living child, no matter when or what the existing conditions.

Symphysiotomy. This operation has assumed the position that it is justly entitled to, and in selected cases where impaction has occurred it ought to be given serious consideration, provided that the child is alive. Notwithstanding many unfavorable reports that have been presented, I firmly believe this is the operation which will be adopted in the future as the only surgical procedure in all cases of impacted face, the child being alive and the mother in a fair condition. In those cases where the woman has been in labor for days and thoroughly septic, then a symphysiotomy will only hasten death.

Abdominal Section. So grave an operation, at such a time and for such a condition, must necessarily be a subject for much discussion, and, from the disparaging histories and statistics of the few reported cases, I doubt very much whether it will be countenanced in the future.

REPORT OF A CASE OF RUPTURED TUBAL PREGNANCY.

By WEBB J. KELLY, M.D.,
PIQUA.

To come before this Association and report a single case of ruptured tubal pregnancy in which there was nothing particularly abnormal in the pathological condition would appear to be uncalled for and unnecessary. At the same time, when we consider the urgency of something being done in these cases, the lack often of previous proper diagnosis, and many times our own unpreparedness to operate, they become very interesting, especially so to the operator. They oftentimes not only press the operator to his extreme limit to know what to do, but they try the nerves of the best operators. The following case would probably rank as one of the latter.

In 1899 I was summoned by telephone some forty miles distant to see a lady suffering from "nervous prostration," at least that was the diagnosis of the attending physician. On my arrival I found Mrs. R., aged twenty-six; married; mother of one child eleven months old. The patient was almost pulseless and in a state of collapse.

From the husband I elicited the following history: she failed to menstruate eight weeks previous to my being called. Had menstruated twice since the birth of her baby. Two weeks ago she spent the day in the country, and on returning in the evening, instead of stepping out of the buggy, the ground being muddy, she jumped to the pavement. She at once experienced very severe pain in the right ovarian region, sank to the sidewalk, and fainted. She was carried into the house and placed on a lounge, where she received medical attention, and it was some time before it was thought prudent to even move her into bed. She remained in bed for a day or two, and then went about the house doing the ordinary housework. There was no flow during this time. Four days be-

fore I was called she stooped over to lace her shoe and experienced the same feeling as when she jumped from the buggy. She fainted, falling over on the floor, where she was found by her husband, who picked her up and placed her in bed. Here she had remained ever since. There had been no visible hemorrhage at any time, no flow. She would occasionally show signs of collapse and pass into a semiconscious state, from which she would with difficulty be aroused. This was the basis for the diagnosis of "nervous prostration." Of all the diseases that will be called upon to answer for its sins, I think this so-called "nervous prostration" will head the list.

The pulse at time of examination was barely perceptible; the cheeks blanched; the gums white; features pinched—in fact, it looked as if she might die at any moment. The abdomen appeared to be full, especially on the right side; the uterus was not enlarged, but upon the right side could be felt a bulging mass.

Here I was, forty miles from home, without an instrument, none to be obtained nearer than eighteen miles, and a woman dying from hemorrhage from a ruptured tubal pregnancy. Stepping to the telephone, I had this friend pack up what he had and send it by messenger. While awaiting his arrival we prepared a room in which to operate. When he arrived it was 8 o'clock at night, and when I unpacked the valise I found he had forgotten to send me any needle. Some time was lost in attempting to sterilize a couple that were obtained from a local physician's pocket case.

Placing the patient on the table, she was given just a little ether —I can assure you there wasn't need for much. Hastily opening the abdomen, I found the hemorrhage. And when I say it was found I mean it was in every conceivable sense. Anyone who has seen the fearful and frightful hemorrhage of these cases can realize my position, and I don't believe anyone else can. It simply poured out, and more than once I was fearful that she would be dead before I could complete the operation. Hastily pushing my hand down into the cavity, I grasped the bleeding part, after which it was clamped on both sides until a ligature could be passed and the tube removed.

During this time the husband flushed the abdominal cavity with a hot saline solution. This was done so thoroughly, and I might say so profusely, that we were literally standing in blood. What few large clots remained were scooped out and the abdomen closed with silkworm-gut. I failed to notice the fetus, which was probably seven

weeks old, but I have no doubt it was thrown out during the operation. She was placed back in bed, surrounded with hot-water bottles; an infusion of saline solution was used. Hypodermic injections of strychnin were given, and after a time she rallied.

In the course of a few days a large stitch abscess formed, the infection coming from one of the needles. It was thoroughly opened and irrigated. About the seventh day the glands of the neck commenced to enlarge and become tender. The axillary, cervical, in fact the glands all over the body became infected. While the doctor was dressing the abscess on the morning of the tenth day he found the fluid did not reappear at the opening, but, on the other hand, seemed apparently to enter the bowels, thereby causing them to move. The next day there was oozing of fecal matter through the opening, and when he was irrigating the abscess had the same experience as on the previous day, the bowels moving. This state of affairs continued for some time, the opening becoming smaller and smaller until it finally closed. She finally made a complete recovery, enjoys splendid health, is now pregnant, expecting to be confined in November.

It seems to me there are a few things in this case of especial interest, *i. e.*, the length of time intervening between the time of rupture and the operation; the amount of blood lost; the operation in collapse; the formation of a fecal fistula with a spontaneous cure; recovery after such thorough infection; her present pregnancy being so far advanced without any perceptible trouble from the adhesion of the bowels to the peritoneum.

I have purposely avoided giving in detail the medical treatment of this case, as it would be tedious and probably uninteresting to this body.

A REPORT OF TEN CASES OF CESAREAN SECTION PERFORMED AT ST. MICHAEL'S AND ST. BARNABAS'S HOSPITALS, OF NEWARK, N. J.

By CHARLES L. ILL, M.D.,
NEWARK.

Cesarean sections are indicated whenever delivery by the normal passage is dangerous or impossible. With the advance of abdominal surgery its indications have been widely extended. The great success of to-day is no doubt due to our aseptic technic. Much of the mortality must depend upon the character of our cases. Neglected, exhausted, and septic cases will, as a matter of course, present a greater mortality than those where the operation has been done at our convenience and on a patient properly prepared. At the present time we must consider the following conditions as an indication for the operation: extreme pelvic contractions in a relative sense; for a small child might be dragged through a pelvis through which it would be impossible to deliver a large one. Such contractions are usually due to rickets, osteomalacia, or arrest of development. Tumors in the pelvis growing from the bone or soft tissues are frequent indications. Scar tissue and artificial fixations of the uterus have of late caused serious obstacles to normal deliveries. We read much of fibromyoma producing obstruction. In our experience this is rare; we have but one case to report. A little patience will commonly allow the tumor to be pushed out of the pelvis, or else it will rise above the brim as the lower segment of the uterus retracts. We have frequently had occasion to observe this. An occasional indication for the operation will be puerperal convulsions and placenta previa. We have the choice of one of four operations —Sänger operation, ordinarily called the classical Cesarean section; the Fritsch operation, which simply means an incision transversely

through the fundus of the uterus; the Porro operation, and a total extirpation.

In the septic cases we would probably do a Porro operation. In the case of new growth where the removal is indicated a total extirpation would be our choice. In the case where we can deliberately go to work a classical Cesarean section or the Fritsch operation must be our choice. It seems to us that the Fritsch operation is coming more and more into prominence for reasons which have been extensively published. At times we find that we must change the plan of operation and substitute a Porro operation. This will most frequently be the case where hemorrhage due to inertia supervenes.

We still find some difference of opinion as to the time selected for the operation. Most operators, it seems, would favor to select the time and not wait for the onset of labor; thus the great danger of sepsis is eliminated to a marked degree. The great objection to the operation previous to the onset of labor seems to be the fear of hemorrhage, supposed to occur on account of imperfect contractions. The fear of sepsis due to the retention of lochia from a closed cervix is also spoken of. In all of our cases none of these objections proved true. There was good contraction of the uterus, and the drainage through the cervical canal was perfect.

It is not my intention to go into the discussion of the many interesting points concerning Cesarean section, but rather to report the following cases, which in many respects are interesting, and one or the other possibly unique:

CASE I. *Carcinoma of cervix of advanced stage; labor at term; Cesarean section; child lived two days, mother four months; time, twenty-seven minutes; operation by Dr. Edward J. Ill.*—Mrs. J. F. was sent to St. Barnabas's Hospital by Dr. Lawrence, of Summit, N. J., on December 17, 1897. She was forty-five years of age, had several children, and always a normal labor. This time she had been in labor for four days, and no progress was made in the endeavor to expel the fetus. Upon physical examination it was shown that she had extensive carcinoma of the cervix and vagina. The patient was much emaciated, the uterus hard and solid—*i. e.*, in clonic contraction. The abdomen was opened in the middle line far enough to eventrate the corpus uteri, and thus bring it outside of the abdomen. An incision into the anterior wall, in a sagittal direction,

brought the operator directly into the placenta. The placenta was rapidly separated from the uterine wall, the membranes ruptured, and the child delivered by the feet. The placenta followed quickly, and the uterus contracted satisfactorily. The uterine wound was closed with silkworm-gut sutures, which were placed three-quarters of an inch apart, and were buried deeply into the tissues, taking but little peritoneum and no mucosa in its grasp. Over this a continuous peritoneal suture of catgut was inserted. The abdomen was closed by a through-and-through silkworm-gut suture. Her recovery was uninterrupted. The child weighed five pounds, and lived two days. The mother died four months later from the malignant disease.

CASE II. *Dystocia produced by ventrofixation of the uterus of two years' standing; Cesarean section after two weeks of labor; mother recovered, child died in twenty-four hours; operator, Dr. Edward J. Ill.*—Mrs. E. S., aged twenty-nine years, from Orange, N. J., was brought to St. Barnabas's Hospital on account of her inability to give birth to her child. She had given birth to two children previously and to two miscarriages. Her first child was delivered with forceps, which resulted in extreme laceration of the cervix and perineum, retroflexed uterus, and partial prolapse. Two years ago she had a miscarriage, and was cureted in February, 1897. In April Dr. Edward J. Ill repaired the cervix and perineum, and did a ventrofixation. She became pregnant in February, 1898, having been in remarkably good health. Two weeks ago labor began, and the membranes ruptured. The head did not descend, and an examination failed to detect the cervix, nor was a presenting part discovered. With the patient under chloroform anesthesia the cervix could be felt above the promontory of the sacrum. The uterus was firmly contracted, but all pains had ceased during the last eight hours. Her urine contained much albumin, hyaline, and granular casts. It was evident the woman could not give birth to this child by the ordinary way, and a Cesarean section was performed. When the abdomen had been opened it was found that the fundus was fixed by adhesions to the lower part of the abdominal wall. Upon section of the adhesion the uterus immediately took its normal position, and through an incision into the anterior wall of the uterus a child of seven pounds and six ounces was delivered. The placenta was in the line of the incision and separated to a great extent. The child

was not vigorous, and died within twenty-four hours. Interrupted catgut sutures closed the deep portion of the uterine wound, while a superficial continuous suture of catgut closed the peritoneum. The mother suffered from uric-acid poisoning for some days, and was delirious for the first twenty-four hours. Her urine still contained some albumin and a few casts when discharged. The writer is informed that she has given birth to a child normally since.

CASE III. *Cesarean section twice in one year for deformed pelvis; abscess in the broad ligament with a communicating fistula in the vagina and a cicatricial vagina; recovery of mother and both children; operator, Dr. Charles L. Ill.*—Mrs. B. O'M., aged thirty-seven years, nativity Ireland, had given birth to four children, all dead during or directly after birth. All were instrumental cases, and sepsis followed every confinement. The operator delivered her of her fourth child at the seventh month, with the hope of producing a live child, but it died at the end of two weeks. He also delivered her at her second and third confinements. She was very desirous of a living child when she was admitted to St. Michael's Hospital on January 17, 1899. Physical examination revealed a fistula running from the left side of the cervix up into the broad ligament, and a great deal of cicatricial tissue. The measurements taken of this pelvis present the following odd figures:

	Centimeters.
Anterior superior spine	23
Crests of ilium	28
Trochanter	33
External conjugate	21
Diagonal "	7
True "	5

While the left linear terminalis is easily reached in its whole extent, the right linear terminalis is beyond the reach of the finger.

The operation was on January 21, 1899, two days before the expected termination of pregnancy. The uterine wound was sutured with heavy catgut, a great amount of deep tissue being grasped in each loop. A running suture of a finer material was used to close the peritoneum. The abdomen was closed by a through-and-through silver suture. Mother and child were discharged well on the twenty-first day. This was her first confinement free from fever. She again entered the hospital on December 28 of the same year, one

week previous to her expected confinement. She again demanded a Cesarean section, but refused a castration or a section of the Fallopian tubes, from religious motives. On December 30, 1899, an incision through the former scar was made. The uterus was again brought forward out of the abdominal cavity; an incision across the fundus from one horn of the uterus to the other admitted an easy delivery of the child and secundines. It was found that this incision was very convenient, and very small after the uterus had contracted. Closure of the wound as in the former operation. The child weighed eight and three-quarter pounds. Mother and child discharged well on the twenty-second day.

In the reported operations compression of the broad ligaments was practised, and the hemorrhage in every case was found rather excessive. This practice was omitted in this operation, and the hemorrhage was found to be almost nothing.

In the cases to be described hereafter no manual compression of the broad ligaments and cervix was practised.

CASE IV.—*Cesarean section at term for a pelvis too small in all diameters, but not excessively so; operation by Dr. Edward J. Ill.* —Mrs. M. F., aged twenty-eight years, born in Ireland, three children, no abortion, was sent to St. Michael's Hospital by Dr. V. Mravlag, of Elizabeth, N. J. All her children were born dead or died during delivery.

There was no history of instrumental interference, but all her children presented in abnormal position. The following were the measurements of her pelvis:

	Centimeters.
Oblique conjugate	7½
Anterior superior spine	24
Crests of ilium	22
Trochanter	30
External conjugate	19
Circumference	87

She had refused to have premature delivery. Her doctor now requested a Cesarean section. There was nothing particular about the operation, except that the fundal incision was made as in the last case, and a continuous deep suture of catgut instead of an interrupted suture brought the tissue together. Mother and child discharged in twenty-five days, well.

CASE V. *Cesarean operation for convulsions at six and one-half months; child lived one hour; mother recovered; operated on by Dr. Edward J. Ill.*—Mrs. M. B., aged twenty-two years, English born. Patient was admitted to St. Barnabas's Hospital, having suffered from convulsions which continued uninterruptedly for six and one-half hours. The cervix was found to be very long and closed, so that any attempt to remove the child this way seemed out of the question. Her bladder contained no urine. The coma, cyanosis, and convulsions were so severe that it looked as if death was imminent. The only way by which this patient's life could be saved seemed to be by Cesarean section.

The classical section was performed; the uterine wound was closed by a deep and superficial continuous catgut suture; the abdominal wound was closed with silver wire. While on the operating-table artificial respiration was resorted to, sulphate of strychnin was given hypodermically, and 500 cubic centimeters of normal salt solution was injected under the breast. During the next twenty-four hours 1000 cubic centimeters of normal salt solution was injected under the skin. During this time she was also given 2 cubic centimeters of Woodward's tincture of veratrum viride. Chloroform was administered for the convulsions and the chest cupped for excessive edema of the lungs. After forty-eight hours she regained consciousness. Some urine was passed twelve hours after the operation. She was discharged May 28, twenty-two days after she was admitted, the urine being nearly normal. One can imagine the severity of the uremic poisoning from the fact that for the first seven days of her illness she was not conscious, or, rather, could not remember any of the circumstances attending her illness.

CASE VI. *Cesarean section for obstructed labor due to a large fibromyoma developed in the cervix; operation by Dr. Edward J. Ill.*—Mrs. S. J. C., aged thirty-six years, had six children previously, the last child six years ago. She always had normal labor. She was sent to St. Barnabas's Hospital by Dr. G. R. Kent on September 13, 1900. She had been in labor for three days without any progress. On examination it was found that three-quarters of the posterior part of the pelvis was filled with a hard, solid tumor reaching a hand's breadth above the pubis. When under an anesthetic it was found impossible to push the tumor out of the pelvis. The membranes had ruptured. A typical Cesarean section was per-

formed. Neither tumor nor uterus was removed because of the great fixation of the tumor in the pelvis. Both mother and child were discharged well in twenty-seven days, and remain well to this day.

CASE VII. *Cesarean section after futile attempts to deliver per viam naturalem; death of mother and child; operator, Dr. Emil Guenther.*—Mrs. A. B., aged thirty-one years, was admitted to St. Barnabas's Hospital for delivery shortly before the onset of labor. After twenty-four hours the patient showed signs of sepsis. The forceps proved of no avail. Version made things no better. By this time her temperature was 102° F. and her pulse was 140. Cesarean section was the only available means. It was done quickly and carefully. The method of operation was the same as those described heretofore. The child was dead previous to the operation, and the mother died within thirty-six hours of sepsis.

CASE VIII. *Cesarean section following ventrofixation of the uterus and repaired cervix; operation by Dr. Edward J. Ill.*—Mrs. K. C., born in Canada, aged twenty-five years, was seen in consultation with Dr. S. E. Robertson for extreme shock during labor, on January 25, 1891. The patient presented the following history: she had three children and no abortion. The patient was in poor health until five years ago, when she had her cervix and perineum repaired and a ventrofixation of the uterus done. After the operation she did not improve much, complaining of constant headaches and hysterical spells. Five days previous to the doctor's visit she had a sudden pain in the abdomen, as if something had given way, and had labor pains on and off. Dr. Robertson saw her on January 25, when she had pains regularly, but not severe. There was no discharge, and the patient felt well. The doctor could not feel any cervix, and decided to wait for further developments. After returning in a few hours he found the patient in collapse, extremely pale, and in great pain. The operator saw her at 8 P.M., and noticed the following condition: a well-nourished woman of extreme pallor, with a pulse scarcely perceptible. The distention of the abdomen was immense, the patient lying on her right side. The abdomen was found to be very tense and tender, with a scar three inches in length in the suprapubic region. No cervix could be discovered in the vagina, nor could Douglas's cul-de-sac be reached. There was not the slightest bloody discharge in the vagina, nor could any presenting part be made out.

The diagnosis was dystocia due to ventrofixation and closure of the cervix; hemorrhage into the uterine cavity due to separation of the placenta. The severity of the case was recognized by her physician, and the operation of Cesarean section was advised. The possibility of extirpation of the uterus was noted. Dr. Robertson immediately injected 500 cubic centimeters of normal salt solution under the skin, while the operator gave orders at St. Michael's Hospital for the operation. The doctor very kindly accompanied her to the hospital in an ambulance, giving her frequent doses of strychnin and brandy on the way. On arrival at the hospital it was shown that the patient had not lost any ground; nevertheless 1000 cubic centimeters of normal salt solution was injected under the breast during the operation. At the operation the following very interesting condition was discovered: the upper portion of the posterior wall of the uterus had been fastened to the abdominal wall, and as the uterus grew out of the pelvis it twisted half upon itself, so that the upper posterior portion of the fundus presented in the wound. Upon separation of the adhesion the uterus regained its normal position as soon as it was lifted out of the abdominal cavity. An incision through the anterior wall of the uterus proved the diagnosis. There was a complete separation of the placenta. The amount of blood between the uterus and the membranes was something to frighten even the most courageous. The uterus would not contract. It lay over the abdomen like a wet rag. A serre-neud was quickly placed around the upper portion of the cervix. The stump was fastened into the lower end of the wound. The abdomen was filled with a liter of normal salt solution, and closed by interrupted silkworm-gut sutures. The shock of the operation was almost nothing, the patient being in as good condition as, if not better than, when first seen by the operator. The child was dead, but the mother made an uneventful recovery. The serre-neud was used for this case because a rapid operation was necessary. It lasted only twenty minutes. The woman was discharged well on the forty-fourth day, but still very pale.

CASE IX. *Cesarean section for obstruction caused by ventrofixation; mother and child discharged well; operation by Dr. Charles L. Ill.*—Mrs. K. S., a German, aged forty-two years, was admitted to St. Barnabas's Hospital July 11, 1901, while in labor. She presented the following history: eighteen months previous she

had two sets of operations for complete prolapse of the uterus with cystocele and rectocele. There had been an amputation of the cervix and an anterior and posterior colporrhaphy and a ventrofixation. No artificial support had done her any good, and as she was a hard-working woman, the wife of a baker, and had had no children for ten years previously, Dr. Edward J. Ill performed the above operations. She soon became pregnant, and was carefully observed during the last two months of her pregnancy. The child was known to be in a transverse position and the cervix high up in the pelvis. After she had been in labor for two days in the hospital and no progress made, a typical Cesarean section was done. The incision through the uterus was made a little to the left, and a live child extracted. An interrupted catgut suture closed the uterus and a through-and-through silkworm-gut suture closed the abdominal wound. Mother and child discharged on the twenty-third day, well.

In reviewing these cases the writer draws the following deductions:

1. Ventrofixation must be an operation of the past in all patients during the child-bearing period.

2. Cesarean section should be done more frequently than heretofore, and in all cases where the child's life is in imminent danger and the mother's future health at stake.

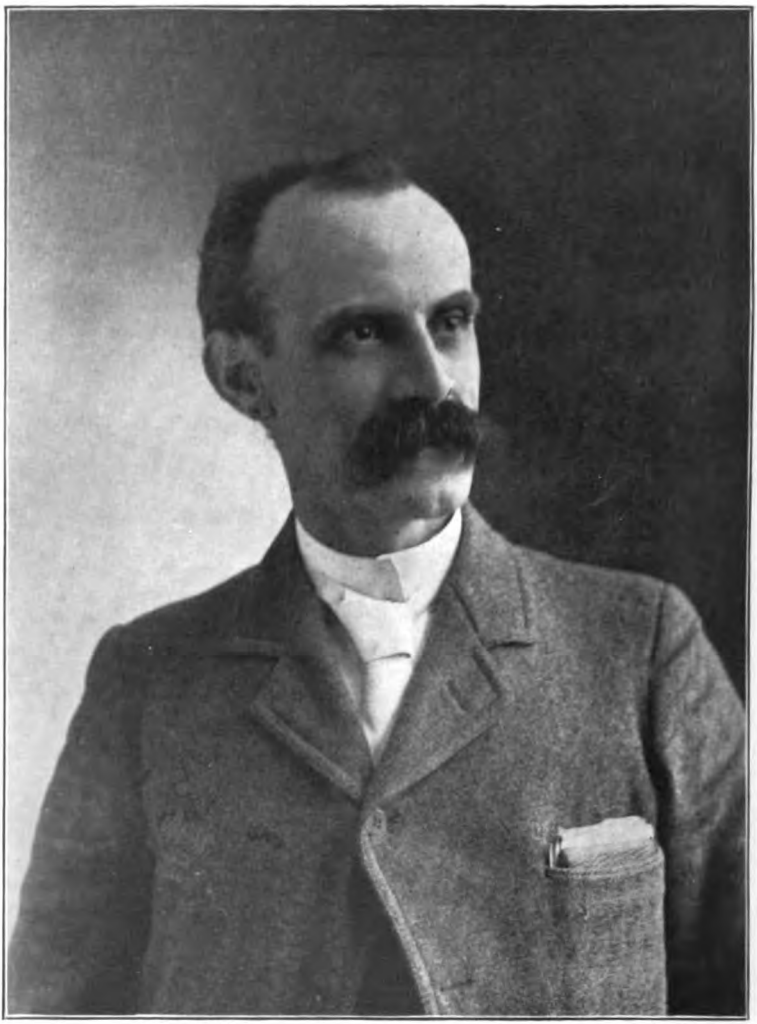
3. Early cases of uremic convulsions with a tightly-closed cervix, especially in primiparæ, afford a better chance by Cesarean section than by any other means.

4. The fundal incision has the advantage of a smaller wound, and is less likely to form adhesions to the anterior of the abdomen.

5. Absolutely absorbable material should be used in closing up the uterine wound.

6. Operations previous to the beginning of labor are as successful as, if not more so than, done after the beginning of labor.

7. Quickness of operation and perfect asepsis are greatly to be desired in all cases.



ROBERT BARNWELL RHETT, JR., M.D.

1854—1901.

IN MEMORIAM.

ROBERT BARNWELL RHETT, JR., M.D.

COMPILED AND CONTRIBUTED BY
WILLIAM WARREN POTTER, M.D.,
BUFFALO.

ONE of our able and distinguished Fellows, though so modest as to take but a small part in the proceedings of the Association, was Dr. Robert Barnwell Rhett, Jr., of Charleston, S. C. He was elected to fellowship at Richmond, Va., in 1896, which meeting he attended, and he was present the following year at the annual meeting at Niagara Falls. He died at his home in Charleston, August, 1901, in the forty-seventh year of his age. The following sketch of his life is compiled from the tributes paid to his memory by several medical bodies of which he was a member.

Robert Barnwell Rhett, Jr., eldest son of Robert Barnwell Rhett, the latter a distinguished South Carolinian, was born at Bellevue, the homestead of his mother's family, near Huntsville, Ala., October 17, 1854. His early boyhood was passed at Bellevue and at Columbia, S. C., but after the Civil War he joined his father at Charleston, where he attended a private school. His early education was obtained in part at the Holy Communion Church Institute, now Porter Academy, where he became a pupil in 1868. Three years later he entered the Virginia Military Institute, where he remained until 1874. For pecuniary reasons he was obliged to leave the Institute before completing his course, and he went to Colorado, expecting to find employment as an engineer. Failing in this, he started homeward on foot, walking about a thousand miles, and working his passage as a cattle stoker for the remainder of the distance—four hundred miles or thereabouts.

Soon after this incident he entered a factory at Nashville, with a view to secure the means to carry him through a medical college.

This, too, proved disappointing, and after three years of industrious application to his duties the place he was striving to attain was given to another. Finally, in 1877, his father secured a scholarship for him in the Medical College of the State of South Carolina, at which he obtained his doctorate degree in 1879. As an undergraduate he served one year as interne at the Charleston City Hospital, and after graduation Dr. Rhett was appointed City Dispensary Physician.

Very soon he developed aptitude for surgical work, and before many years became one of the leading surgeons of his region. He prepared himself so thoroughly for the performance of even the lesser operations in surgery that his results were beyond the average, even before the days of perfected aseptic methods. He was a skilful general surgeon first, but by preference he was an abdominal and gynecologic surgeon, which fields developed the particular talents which he had cultivated in the largest measure.

During the Spanish-American war Dr. Rhett was in charge of the city hospital, where he had the opportunity of treating a large number of United States soldiers ill with typhoid fever. With characteristic devotion, he gave several hours daily of his valuable time to this eleemosynary work, and was rewarded by obtaining 95 per cent. of recoveries, a record rare in hospital practice.

His capacity for work was marvelous. From January 1, 1901, to July 18, 199 days, he performed 261 operations, in addition to carrying on his extensive medical and obstetric practice, finding time meanwhile to keep abreast of the literature of his profession.

At the time of his death Dr. Rhett was President of the Medical Society of South Carolina and Dean of the Charleston Medical School. With the college organization he was most prominently connected, and to its welfare he was unselfishly devoted. At the time of his death he was a member of the South Carolina Medical Association, of the American Medical Association, of the Southern Surgical and Gynecological Association, of the American Association of Obstetricians and Gynecologists, and of many other medical and civic bodies.

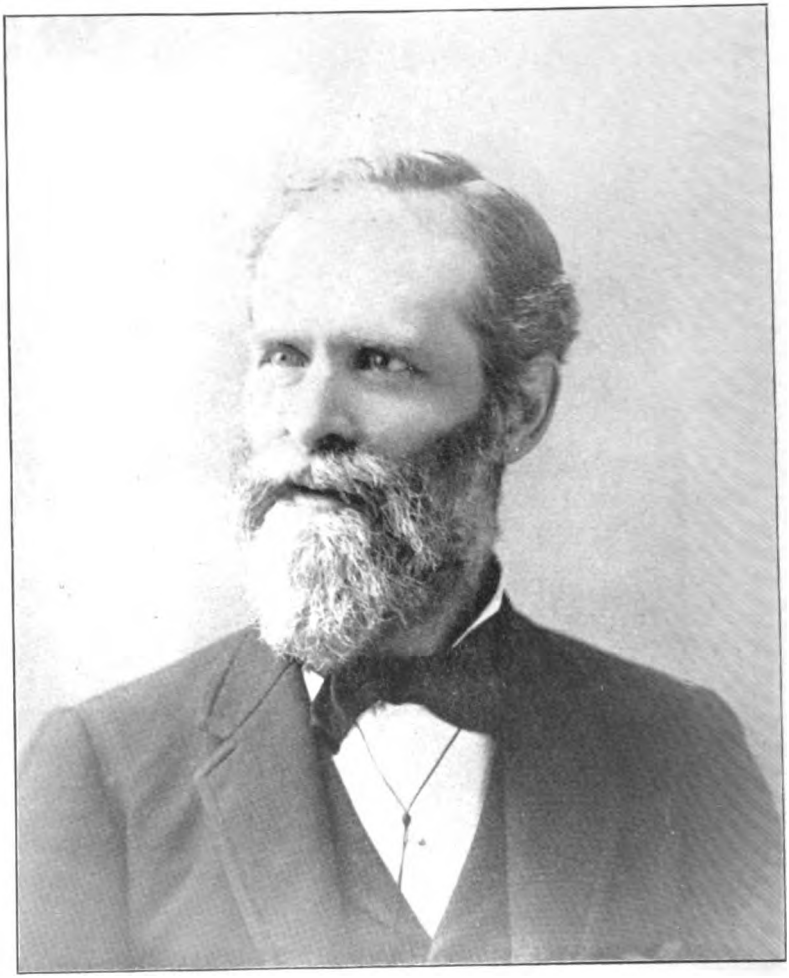
At a special meeting of the South Carolina Medical Society, of which Dr. Rhett was President at the time of his death, a most complete and touching memorial was adopted, commemorative of his life and services. As a fitting conclusion to this compilation we are permitted to quote from that report its final paragraphs as follows:

"But the admiration which we feel for his professional skill and

ability grows to reverence when we contemplate the sweet purity of his private life, his utter unselfishness and perfect charity. We of his profession may place upon his brow the well-earned laurel wreath, but they to whom he ministered will crown his memory with a fadeless masonry omen of his thousand daily acts of tenderness and love. Animated only by the single thought of his mission to relieve suffering, he would neglect the calls of the wealthy that he might minister to the needs of the poor. And the benefaction of his gentle presence, his tender sympathy, and rare, sweet smile fell upon all, helping to lighten the weary load of suffering and sorrow. Often when the door of a desolate home was closed behind him there would be discovered a silver coin for the purchase of needed medicine or food, or perchance to replenish the waning fuel pile. If some poor sufferer required the care that could only be obtained in a private hospital, his was the unknown hand to furnish the necessary means.

"Thus, after his Master's pattern, he went about doing good, heedless of his health, unmindful of his personal comfort, 'in scorn for miserable aims that end with self.' Unable to refuse any call that was made upon him, he continued to labor while his strength lasted, even though the warning hand was heavy on his shoulder. And throughout his final illness his thoughts were constantly with those who had sought his aid, inquiring with almost his latest breath after one of his loved patients.

"Thus ended a life of self-sacrificing devotion, and his gentle soul took flight to join the 'choir invisible, where music is the gladness of the world.'"



GRATZ ASHE MOSES, M.D.

1839—1901.

GRATZ ASHE MOSES, M.D.

COMPILED AND CONTRIBUTED BY
WALTER B. DORSETT, M.D.,
ST. LOUIS.

AFTER an illness of ten years, Dr. Grant Ashe Moses died at his residence in St. Louis, Mo., on July 7, 1901.

Dr. Moses was born at Bordentown, N. J., November 24, 1839, and was the son of that distinguished physician, Dr. S. Gratz Moses, who practised in St. Louis for five decades, and whose death preceded that of his son only four years. After receiving a liberal general education, the younger Dr. Moses graduated from the St. Louis Medical College in 1861, and entered the City Hospital by competitive examination. While on duty there he decided to apply for a position on the surgical staff of the Confederate Army, and to do this he rode on horseback to Nashville, Tenn., a distance of over three hundred miles. After passing the required examination he was appointed surgeon on the staff of General Pemberton, and later was in charge of the field hospital of his division. Although the youngest surgeon in the Confederate service, Major Moses was repeatedly honored by positions of trust, and the war records show him to have proven an accomplished, effective, and fearless officer.

At the close of the war he married Miss Anderson, of Mobile, Ala., and practised in that city until 1871. At that time he settled permanently in St. Louis, where he pursued the active practise of his profession until his health failed, in 1890. Although at first engaged in general practise, Dr. Moses soon began to devote especial attention to gynecology, obstetrics, and diseases of children. In this field he soon became distinguished for his broad views, scientific research, and effectiveness, and at the time of his enforced withdrawal from work, although comparatively a young man, he enjoyed a consultation work in his specialty second to none in St. Louis and the adjoining country. At first a protégé of Dr. Elisha H. Gregory, the surgeon in whose office he studied, he later became associated

with and successor to Dr. L. Ch. Boislinière, gynecologist at Mullanphy Hospital. At this institution Dr. Moses was for many years in charge of the gynecologic wards and clinic. He was professor of clinical gynecology in the St. Louis Medical College, and later elected to the professorship of obstetrics and clinical gynecology in the Missouri Medical College. This position he held until his health failed.

As a lecturer, Dr. Moses was entertaining, clear and forceful, and as an operator, deft and skilful. He contributed frequently to the pages of the *St. Louis Courier of Medicine*, of which he was associate editor, and also to various gynecologic and obstetric publications. As a member of the St. Louis Obstetrical and Gynecological Society he contributed thoughtful and helpful papers, probably the best known being "A Consideration of the Etiology of Ectopic Pregnancy," published in the *American Gynecological Journal*, June, 1892.

He was a Foundation Fellow of the American Association of Obstetricians and Gynecologists, and was elected an Honorary Fellow after he retired from active fellowship; a member of the American Medical Association, of the St. Louis Medical Society, and of the St. Louis Obstetrical and Gynecological Society, of which he was an ex-president.

Always an earnest student of literature, history, and theology, Dr. Moses found in these broad fields much to entertain and give him thought during the last decade of his life, after ill health withdrew him from the activities of his professional work.

Genial, cultured, honorable and forceful, Gratz Ashe Moses was an honor to his profession and an inspiration to those who knew him.

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